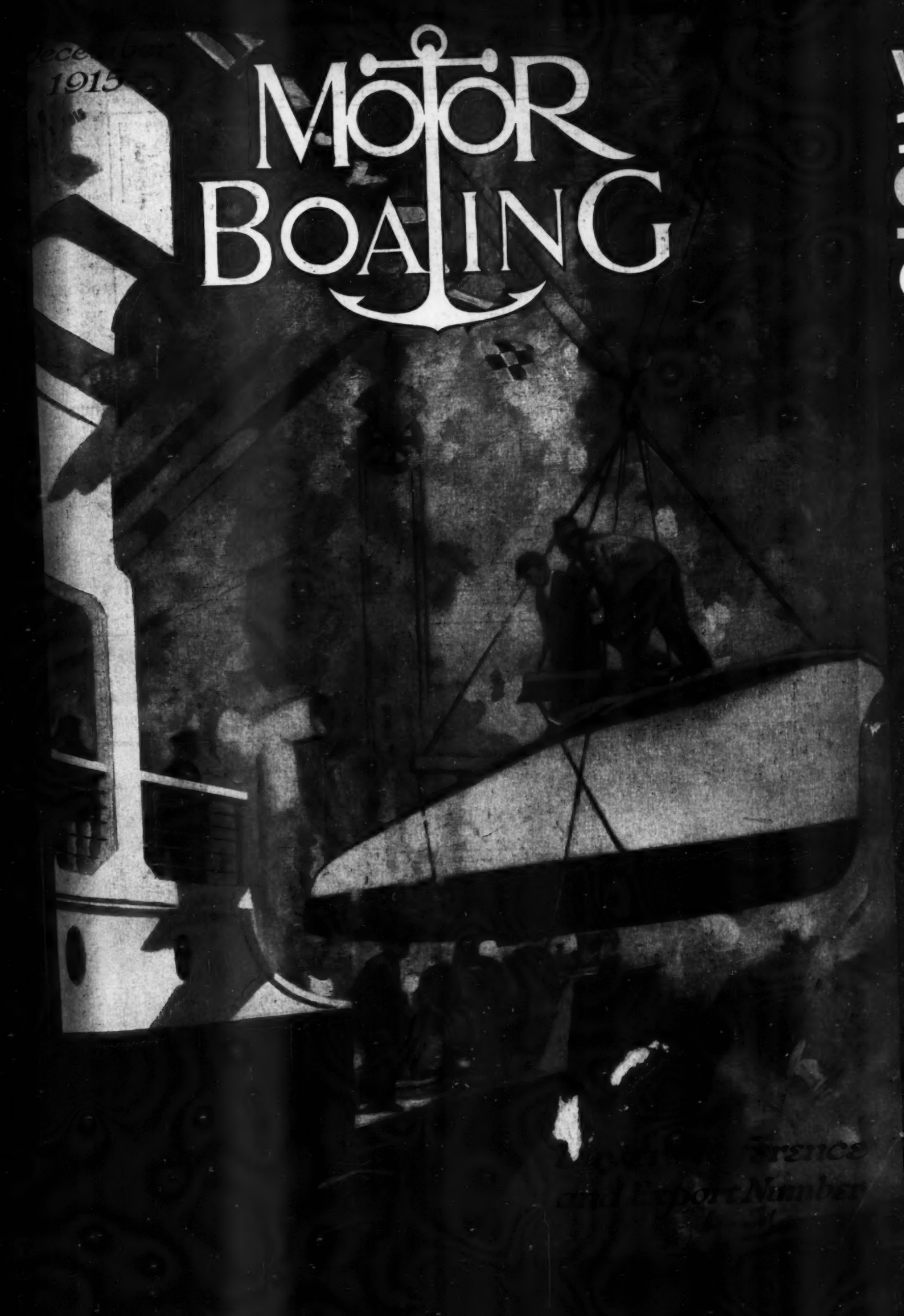
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BOATING

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Sturdy, luxuriously appointed Cruisers. The handy, smaller, reasonably priced Cruisette and the swift Elco Expresses. "Boats that serve you on the water as the automobile does on land."

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The World's most favored marine engine.

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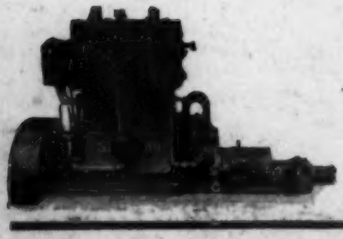

Back of the STANDARD Guarantee is the

Standard Motor Construction Company

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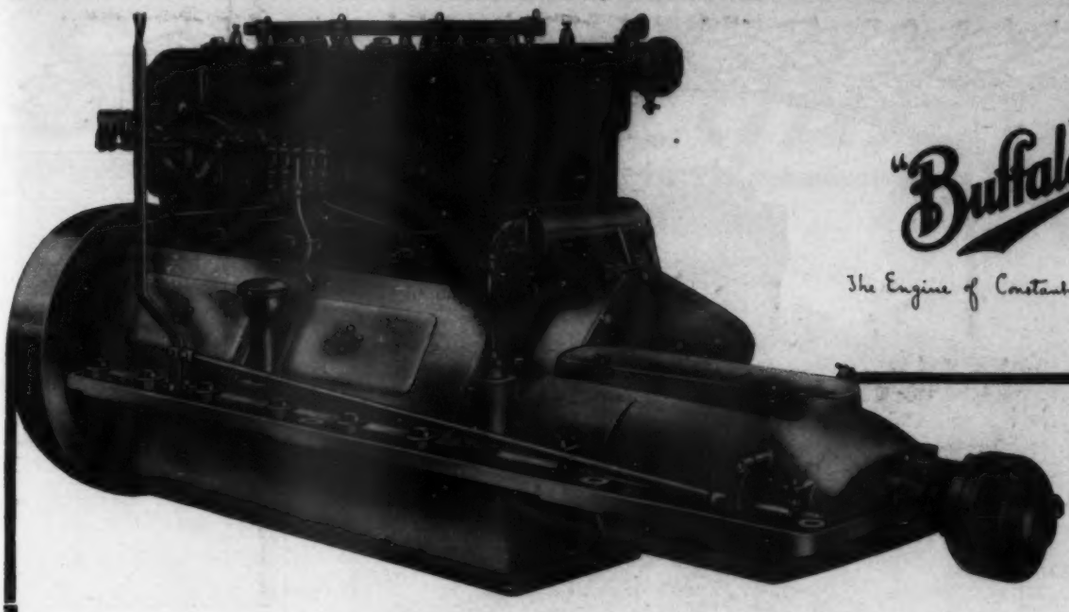

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The Engine of Constant Service

An Engine for Any Sort or Size of Motor Boat

It is the boast of the builders of Buffalo engines that they are able to supply steady, reliable, economical power for any size or type of motor boat. They are not limited to a few stock sizes and designs, but can supply exactly the power plant the boat calls for.

Auto Marine

These are high speed engines built in two sizes, 16-20 H.P. and 25-30 H.P., designed to operate at 800 R.P.M. They are light, compact, dependable, moving parts enclosed, two separate systems of ignition, aluminum base and crank chamber, an improved system of splash lubrication which insures perfect distribution of oil under all conditions. They are easily accessible, simple, economical, dependable. This model is the best power plant for runabouts, displacement speed boats and small light cruisers.

Heavy Duty

The Slow Speed Heavy Duty models are the sturdy work engines of the Buffalo line. They are built in two, four, and six cylinders, and in these sizes: 10-12 H.P., 13-15 H.P., 20-22 H.P., 20-24 H.P., 26-30 H.P., 40-45 H.P., 60-70 H.P., 85-100 H.P., and 125-150 H.P. The smaller sizes have a speed of 400 R.P.M. and the larger 250 R.P.M. These Heavy Duty engines are the best power plant for yachts, cruisers of substantial design, and all kinds of work boats.

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There is a new type of Buffalo engine built in two four-cylinder sizes, 40-60 H.P. and 50-80 H.P. It was specially designed for powering fast cruisers and the largest class of runabouts. These are light, powerful engines, compact and reliable, built specially for two classes of boats of similar requirement, the latest word in marine engine design.

We also build two small medium speed models, 3-4 h.p., and 5-6 h.p., operating at 600 R.P.M. and 800 R.P.M. respectively.

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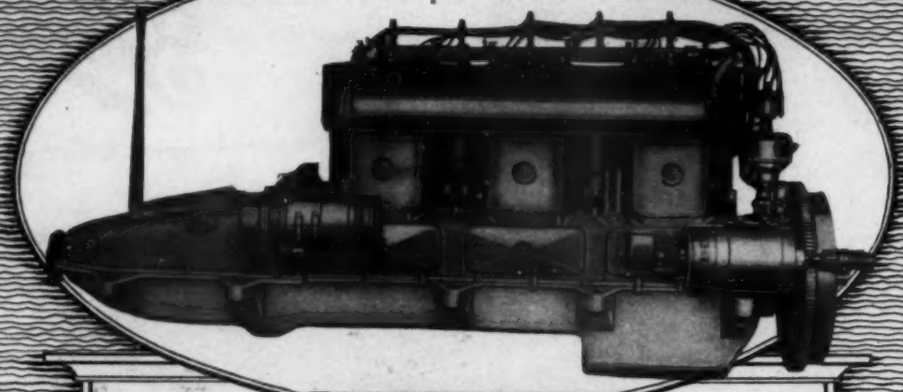
Buffalo Gasolene Motor Co.

1274-1286 Niagara Street **BUFFALO, N. Y.**



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VAN BLERCK

THE 1916 Six Cylinder Van Blerck is a worthy successor to the 1915 Model. An all enclosed motor with the highly efficient Van Blerck pressure oiling system, gear-driven electric starter, improved reverse gear, and tremendous power.

A large number of these six cylinder motors are now going through our factory so that immediate delivery may be had on either domestic or export orders.

The 1916 Van Blerck line includes Fours, Sixes, and Eights, built in three types as noted below. General details of construction are uniform throughout, and all models have cylinders of the same size. You will find here the right power equipment for your boat.

Model	No. of Cyl.	Rated H. P.	Rated R. P. M.	Net Price
Model E-4	Four	65-85	1000-1500	$1025.00
Model E-6	Six	100-135	1000-1500	$1500.00
Model E-8	Eight	135-180	1000-1500	$2200.00
Model E-4 Special	Four	100-110	1500-1700	$1127.50
Model E-6 Special	Six	150-165	1500-1700	$1650.00
Model E-8 Special	Eight	200-220	1500-1700	$2420.00
Model EE-4	Four	40-55	650-1000	$1025.00
Model EE-6	Six	60-85	650-1000	$1500.00
Model EE-8	Eight	80-115	650-1000	$2200.00

The new Van Blerck catalog is now out. Write for a copy

VAN BLERCK MOTOR CO.

Eastern Sales Office: Woolworth Bldg., New York

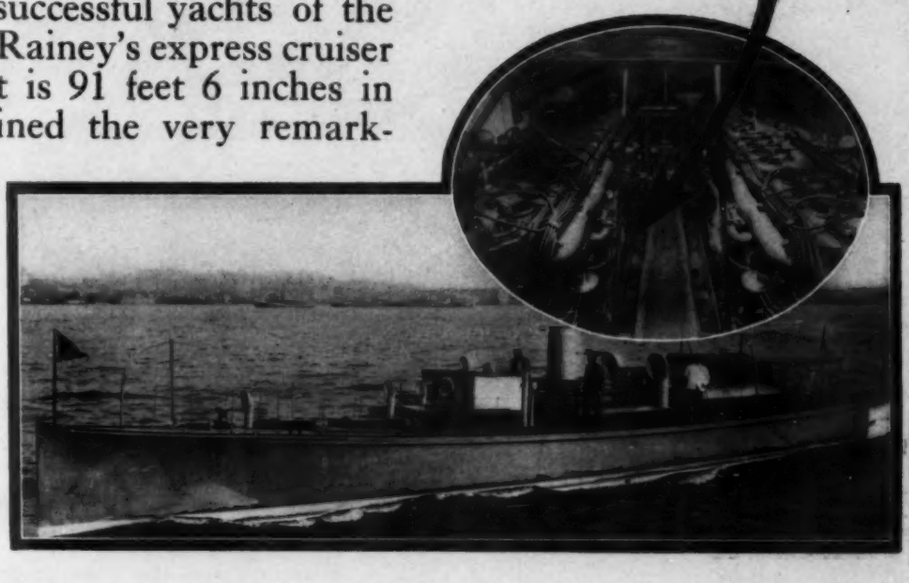
MONROE, MICHIGAN

U. S. A.

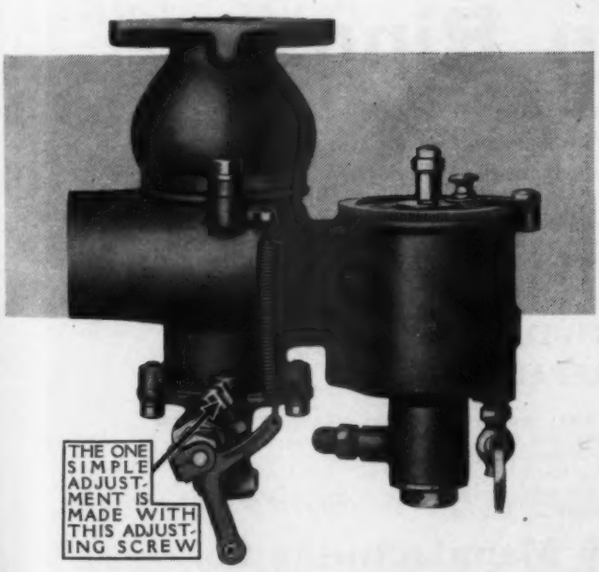
Stewart Equipped

ONE of the most successful yachts of the season is Roy A. Rainey's express cruiser "Conejo." This boat is 91 feet 6 inches in length and has attained the very remarkable speed of 33 miles per hour over a measured mile.

The two big powerful Sterling Engines from whence her power is derived are equipped with model 25 Stewart Carburetors, which are standard on Sterling engines.



STEWART CARBURETOR



The Stewart Carburetor is making rapid strides in the marine field—during the past year it has been adopted as standard equipment by a number of the country's foremost engine builders.

The Stewart is winning out in the marine field on sheer merit alone—on its ability to excell in actual performance.

And the motor boat owner appreciates the Stewart on account of the many advantages it gives them. In the first place it is extremely simple, having but one adjustment that is easily understood and easy to make.

The Stewart will enable your motor to develop its maximum power—it will eliminate the danger due to the motor's back-firing, and its design is such that the rolling and tossing encountered in heavy seas will have absolutely no effect upon its action.

If you are interested in the complete details of this most successful marine carburetor, write and get a copy of our latest carburetor catalog A-10.

DETROIT LUBRICATOR COMPANY

DETROIT, U. S. A.

CANADIAN DETROIT LUBRICATOR COMPANY, LTD. WALKERVILLE, ONTARIO.

One of the world's largest makers of engineering specialties.

Makers of the Detroit Force Feed Oilers.

Power-Speed-Economy

Equip your motor with the most perfect, durable and efficient form of gas-tight and oil-tight seal for the piston.

McQUAY-NORRIS

LEAK-PROOF

Piston Rings

Firm enough to hold bearing, yet delicate enough not to create friction—tough enough to outlast the motor, yet soft enough to take all the wear from the cylinder.

LEAK-PROOF Piston Rings make compression perfect—give more power—save fuel and oil—reduce carbon trouble.

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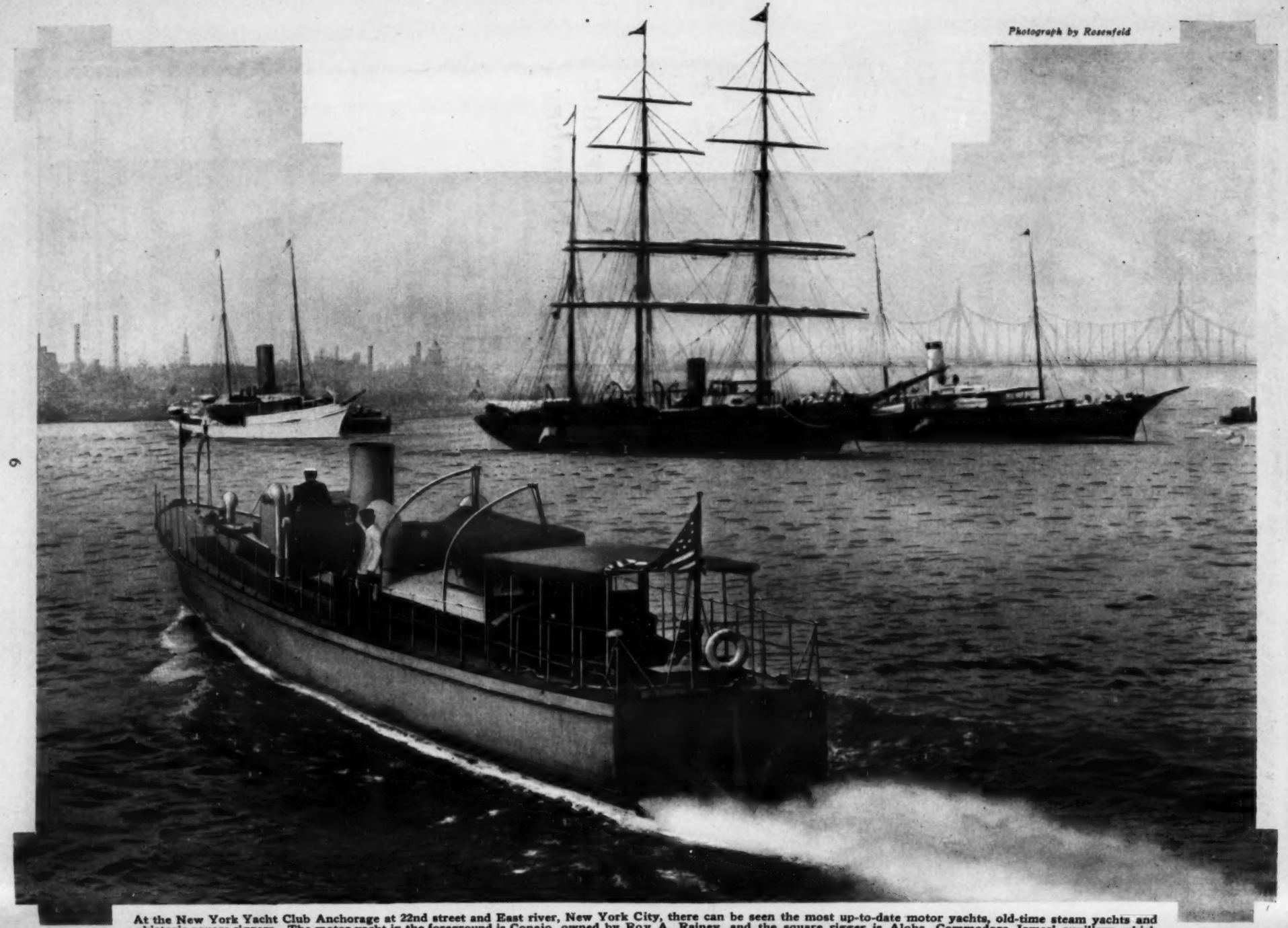
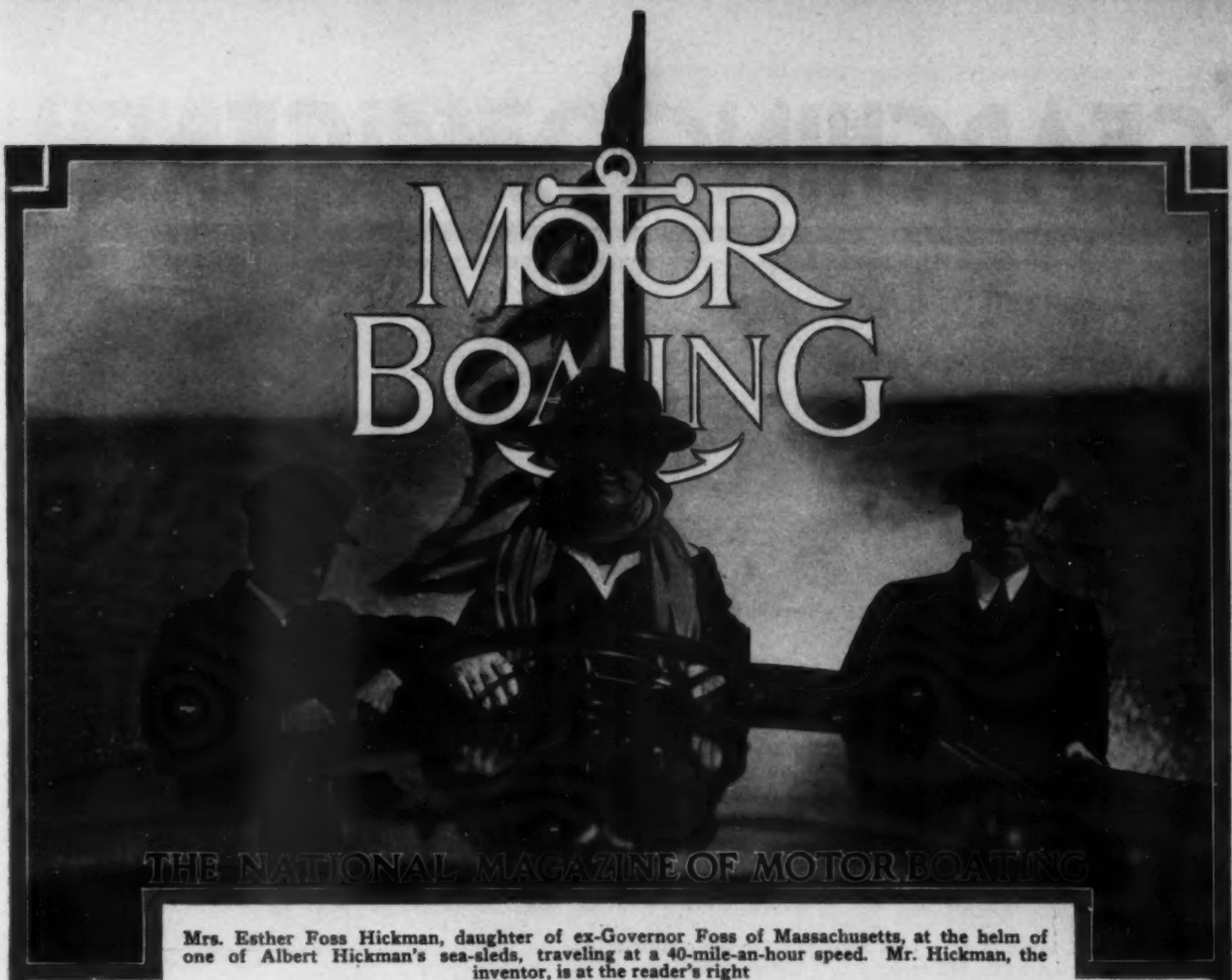


Photograph by Rosenfeld

At the New York Yacht Club Anchorage at 22nd street and East river, New York City, there can be seen the most up-to-date motor yachts, old-time steam yachts and historic square riggers. The motor yacht in the foreground is Conejo, owned by Roy A. Rainey, and the square rigger is Aloha, Commodore James' auxiliary which took him around the world. A modern steam yacht of Morgan's Corsair type is anchored beyond Aloha



Mrs. Esther Foss Hickman, daughter of ex-Governor Foss of Massachusetts, at the helm of one of Albert Hickman's sea-sleds, traveling at a 40-mile-an-hour speed. Mr. Hickman, the inventor, is at the reader's right

At the New York Yacht Club Anchorage at 22nd street and East River, New York City. Rainey, and the square rigger is Aloha, Commodore James' auxiliary which historic square riggers. The motor yacht in the foreground is Conejo, owned by Roy A. took him around the world. A modern steam yacht of Morgan's Corsair type is anchored beyond Aloha

Points for Buyers and Builders

The Annual Buyers' Reference and Export Number of MoToR BoatinG and What it Means to the Industry—The Advantage of Starting Next Season's Plans Now

THE Annual Buyers' Reference and Export number of MoToR BoatinG long ago established a place for itself in the hearts of the motor boating public of America. It has become a fixture in the motor boating world and its appearance is looked forward to by thousands and thousands of enthusiasts with just as much interest as they are now anticipating launching day next spring. Coming out as it does at just the time of the year when the motor boatman's building and buying plans for the coming season are about to crystallize, its contents are of immense value and will be much appreciated by both builder and buyer.

Both the man who has something to sell and the person who has in mind the many days and weeks of pleasure ahead of him next summer aboard his new or improved craft realize how much it is to their advantage to get started early. By this time one's plans should be well mapped out, and the day should not be far distant when the actual start is to be made.

This is the season when the builder is willing to give you his very lowest figure on either new work or on contemplated changes. He must make plans to carry his help through the winter rather than run the risk of discharging them in the fall and not being able to hire them again in the early spring when the rush season begins. Furthermore, much better work will be the result of orders placed at this time of the year, for when the builder is being hounded by dozens of yachtsmen who want their craft ready within a few days in our short fitting-out season, it is unreasonable to expect that he will give you the same service or even the same grade of work that he will during the early winter. It isn't because he wouldn't like to, but simply that it is a physical impossibility.

We feel that our claim to first honors in the field is more than justified considering the present issue of MoToR BoatinG. Never before has such a mass of valuable material been put together and published within the covers of any publication in a manner which will prove interesting and attractive to the high class and up-to-date motor boatman. For months the engine builders, naval architects and others in the trade have been co-operating with us to give to our readers a complete compilation of the industry. No line which any motor boatman could possibly be interested in has been omitted—whether it be new boats, typical examples of the best craft already built, engine data, stock models, or the thousand and one marine accessories.

Our method of presenting all of this material should be of vital interest to every one who desires to see the sport and industry raised to a higher level. Matter usually so dry that it is in danger of blowing away has been worked in with high class half-tone illustrations. Cold and unattractive line drawings which show little or nothing except to the technical trained engineer or builder have been almost entirely eliminated. The representative new boats of the year are shown by means of photographic reproductions, both interior and exterior views, instead of pages and pages of line designs, not reproduced to scale, and which in most cases are "dream boats" never to be built.

The table of marine motor specifications (pages 44-54) is exclusively a MoToR BoatinG feature. Never before has such a thing been attempted in this form, and this table will be studied and analyzed by thousands before they place their orders for these new motors.

The stock or standardized models have been wonderfully developed or improved upon during the past year, and in this issue we have included a department (pages 32-35) in which will be found a complete summary including practically every firm building boats sold from stock.

SEARCHING the SEA'S for

A view of one of the Greenport boats, giving a good idea of the deck arrangement and sheerline

TO escape a craft which can travel 100 miles in considerably less than 4 hours, or cruise 1,500 miles at an 11½-mile speed, or 500 miles at 26 miles an hour, on one filling of the fuel tanks, will require more of a submarine than any of the warring or peaceful nations possess today. It is well known by every one that it has taken many years for the under-water craft to reach the state of development in which we find it now, but the motor boat submarine-destroyer driven by internal combustion gasoline motors, unheard of a year ago, has been perfected in twelve months to such a condition that the entire annihilation of the submarine is not an impossibility.

American brains and labor can claim credit for a large share of this development, and while the American gasoline motor has been working up to a condition of perfection for the past few seasons, which would make it useful for such exacting service, within the year one or two manufacturers have brought out models for this particular work which have placed them in a class by themselves. Motors manufactured in no other country of the world can compare at all favorably with our own, and this fact has led many foreign nations to open negotiations and place many orders for large quantities of American marine motors for use in boats employed in war service. Many of these are for patrol boats, craft for scout work, and for numerous other duties with whose exact nature the censor refuses to allow us to become acquainted.

To satisfy one's self that the high-speed motor boat is a practical proposition to solve the submarine question one has only to be on board during one of the 100-mile trial trips of the boats built by the Greenport Basin & Construction Co., of Greenport, L. I., for this service. Any doubt which he may have had previously will be expelled forever. Weather or conditions of sea make little differ-

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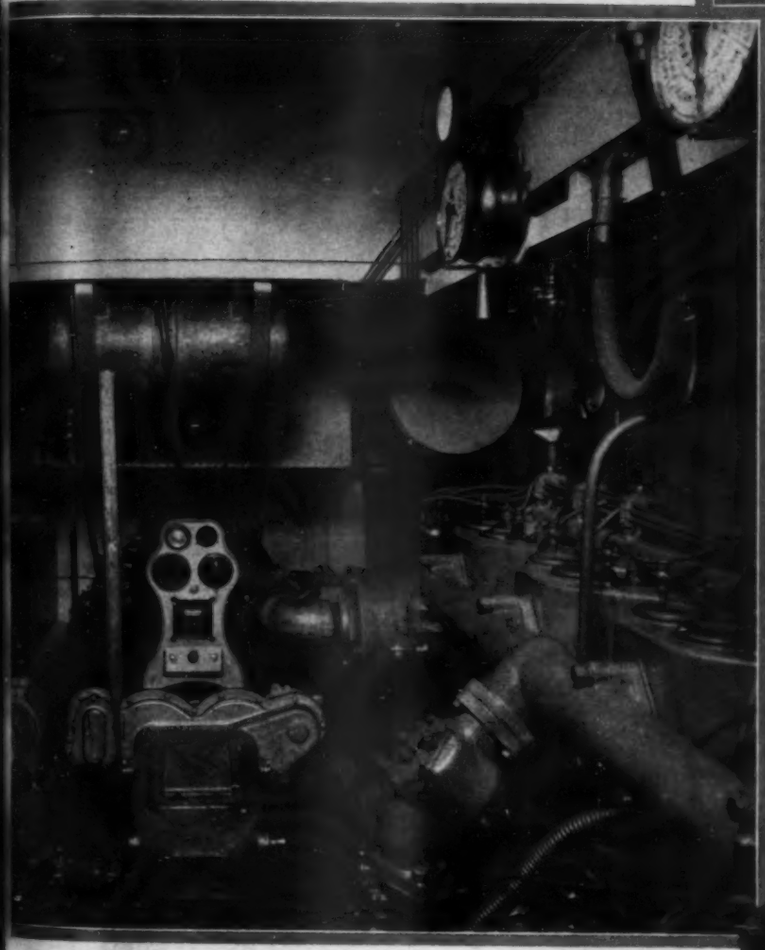
these moto

Going over the measured mile at a speed in excess of 30 miles per hour

SUBMARINES

past twelve months or thereabouts there have been many rumors have been surrounded by a fog of secrecy concerning activity building plants and engine works in this country. Many re- that work was going on for the belligerent powers. A few news- endeavored to give publicity to this activity by printing stories under way, but in every case they have been stories by an out- erally has allowed his imagination to play a major part in the MoToR BoatingG makes no claim to the title of newspaper, our lot to print the first authorized and authentic description of boats which are doing much for the cause of peace.—Editor



The three 200 h.p. eight-cylinder Van Blerck motors which run at 1200 r.p.m.

A cleaner wake at 30 miles was never seen

Photographs by Levick

ence, and a deck load of twenty-five persons in addition to the other weight requirements of actual service do not appear to cut into the speed of these boats appreciably or affect their sea-worthiness or sea-going qualities.

These boats, eighteen of which have been ordered by individuals abroad, and a majority of them already shipped are 60 feet in length by 10 feet beam, and have a draft of 2 feet 10 inches. The underbody shows modified concave V sections, making a design which is popularly referred to by some as wave collectors. The design was worked out by James W. Hussey some years ago, and several models slightly different in their main characteristics were towed to ascertain the most efficient design and the correct proportions to give these boats. The hull is built according to the seam-batten construction, yellow pine being used throughout with few exceptions. The deck beams are oak with cypress canvas-covered decks. The keel, stem, etc. are of oak, and the planking is of long length cedar. The frames are of Douglas fir, with steam-bent oak frames to reinforce them, and are spaced 20 inches apart, center to center.

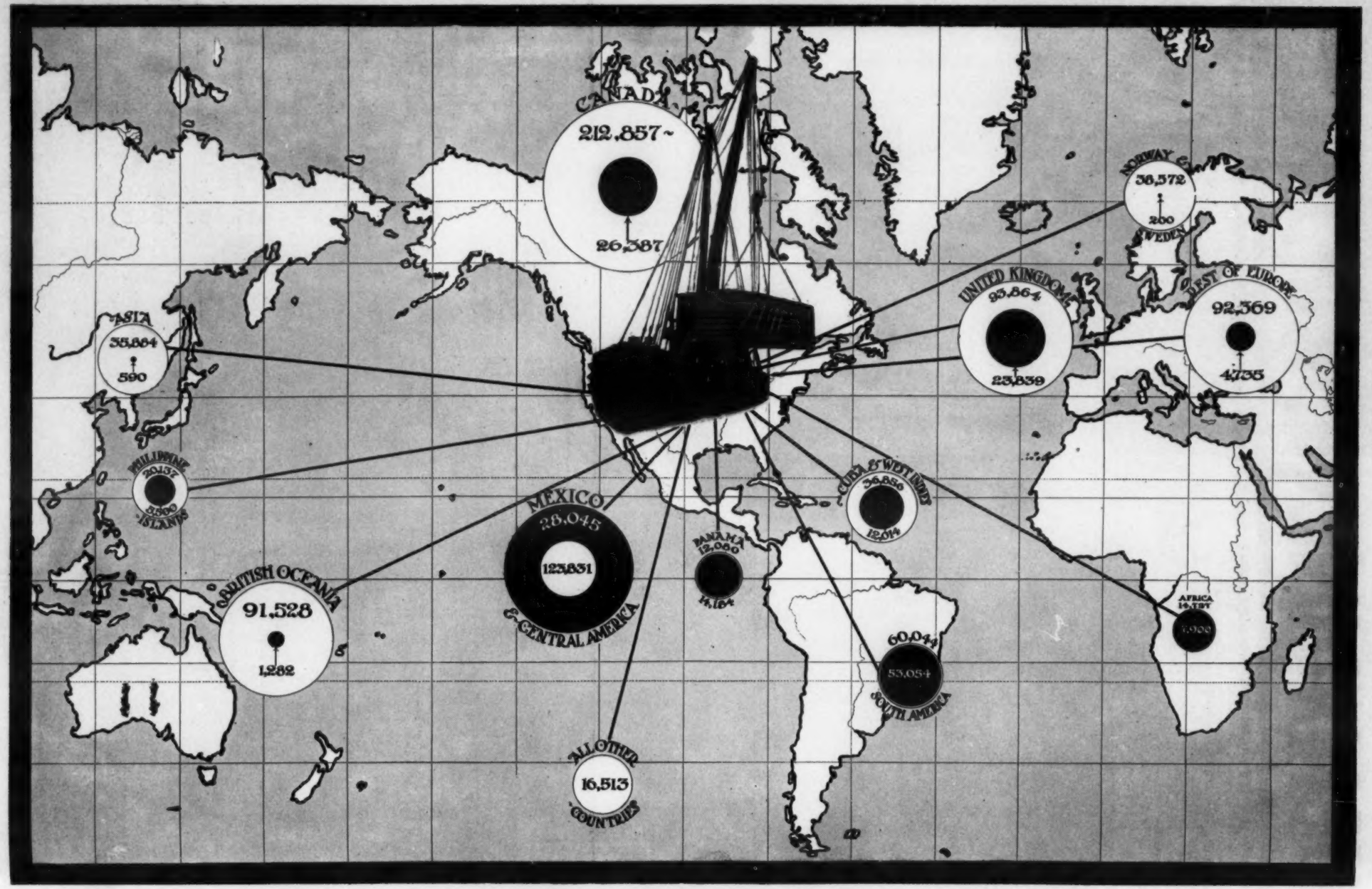
The steering shelter, engine-room telegraph, etc.

There are four steel bulkheads, which are absolutely water-tight, being subjected to severe tests. These are carried up to the foot of the main deck, one of them being between the fore-peak and the fore-castle, another between the fore-castle and the engine-room, with an additional steel bulkhead carried up one foot above the load water line at the forward end of the fuel tanks.

The third steel bulkhead is between the engine-room and the officers' quarters and the fourth is between the officers' quarters and the lazarette. The hull is braced by steel side-stringers, fastened to the main deck clamps, and at the forward and aft ends of the engine compartment. These run down diagonally to the chine log. There are two

(*Continued on page* 84)

Where American Marine Engines and Motor Boats Went to in 1915



The above figures represent the value, in dollars, of the engines and motor boats exported the past year, the figures in the outer circles being for motors and those in the inner representing boats. The areas of the various circles have been made proportional to the values which they represent

EXPORTING A Feature of 1916

American Built Boats and Motors Which Are Being Shipped Abroad for Private and Government Use—Distinctly Satisfactory and Encouraging Prospects in Spite of the Disruption of Commerce

By B. Olney Hough

Editor American Exporter

"WAR orders" have not yet, at least, appreciably affected the actual export trade of American manufacturers of marine motors or motor boats as revealed by the official statistics for the fiscal year ending June 30, 1915. Fear to engage in new enterprises has, perhaps, curtailed orders somewhat for commercial motors in all countries. The economy which has been characteristic of all nations and among all classes has probably operated to restrict purchases of motors for private speed or pleasure boats. Yet the high appreciation in which our boats and motors have come to be held in every country under the sun has manifested itself in orders which have just about equalled the volume of last year—that is, almost reached the highest figure ever recorded in our foreign trade in this line.

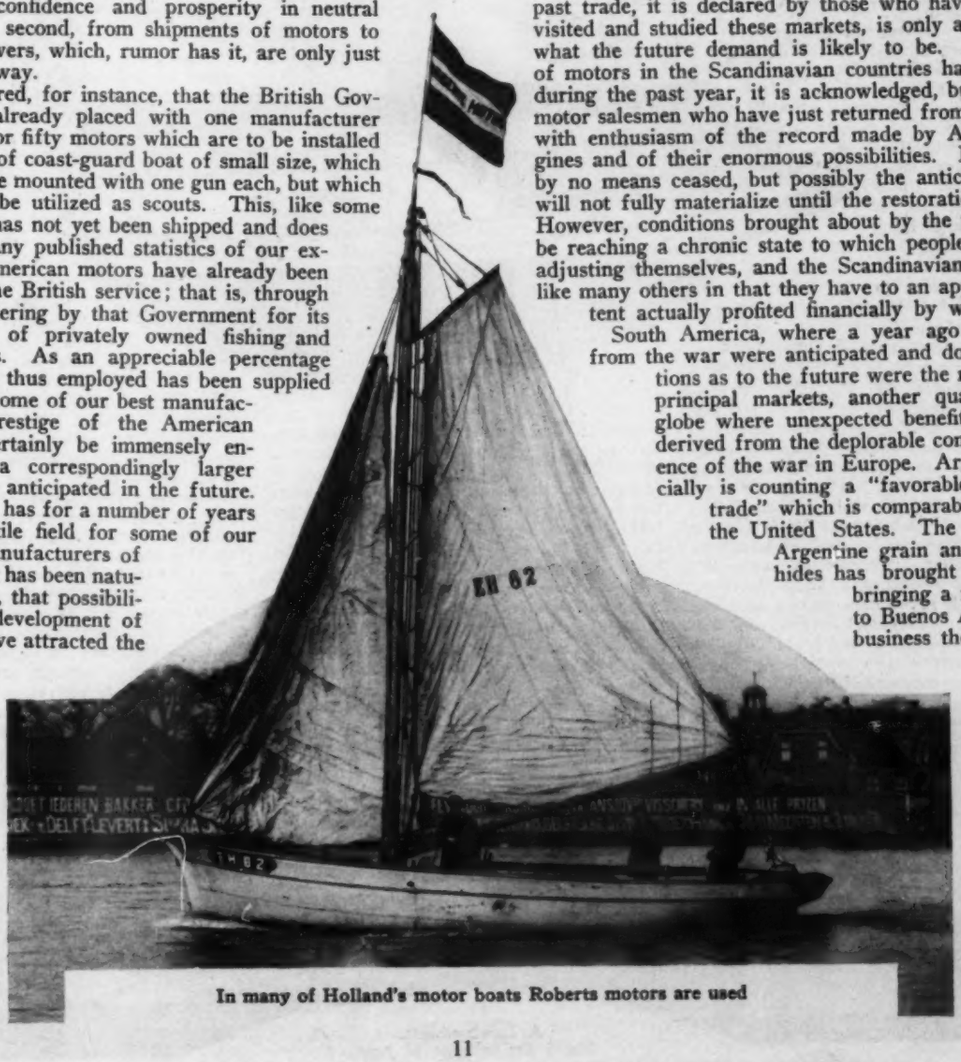
That this highly agreeable result has been achieved by American motors without the artificial stimulus of demands from Governments embroiled in the present terrible conflict in Europe is especially encouraging. It foreshadows a future healthy and normal growth of our export trade, developing from the reputation and actual performances of our engines in foreign lands. Indeed, if one dare venture to assume the rôle of prophet, it seems probable that the coming year's exports will climb far above the record; first, because of returning confidence and prosperity in neutral countries, and second, from shipments of motors to the Allied Powers, which, rumor has it, are only just getting under way.

It is whispered, for instance, that the British Government has already placed with one manufacturer a trial order for fifty motors which are to be installed in a new type of coast-guard boat of small size, which perhaps may be mounted with one gun each, but which are chiefly to be utilized as scouts. This, like some other orders, has not yet been shipped and does not figure in any published statistics of our exports. But American motors have already been employed in the British service; that is, through the commandeering by that Government for its own purposes of privately owned fishing and pleasure boats. As an appreciable percentage of the motors thus employed has been supplied originally by some of our best manufacturers, the prestige of the American motor will certainly be immensely enhanced and a correspondingly larger trade is to be anticipated in the future.

Russia, too, has for a number of years proven a fertile field for some of our prominent manufacturers of motors, and it has been natural, therefore, that possibilities for the development of that trade have attracted the attention of many sales managers. The writer knows of at least four of them who have made the long, weary and disagreeable journey to Petrograd by way of the Arctic Ocean and Archangel in the hope of expanding their business in the Russian Empire. Actual results obtained are said to have been of the most encouraging character, according to the stories which come back to New York, mingled with amusing and sometimes harrowing tales of personal experiences. It is acknowledged that large orders have been placed for several different types of motors, ranging from white-enameled and nickel-plated engines for despatch and torpedo boats down to serviceable types for service on the Volga and other rivers in the transport of the enormous volume of army supplies that is required. Motor builders who offer satisfactory oil engines have always had and probably will continue to have the preference among Russian buyers, including the Government. It is especially satisfactory to Americans to know of the high reputation which the motors hitherto supplied have gained among all classes of buyers and users in the Russian Empire.

To review a few of the other foreign fields for American enterprise in the marine motor line we may first consider Scandinavia and the whole Baltic region. Here there exists a fertile, indeed almost unlimited, field for the products of our factories, especially as adapted to fishing boats. In spite of the fact that a large and eminently promising business has been already established in this part of the world, the past trade, it is declared by those who have personally visited and studied these markets, is only a fraction of what the future demand is likely to be. The buying of motors in the Scandinavian countries has been slow during the past year, it is acknowledged, but American motor salesmen who have just returned from them speak with enthusiasm of the record made by American engines and of their enormous possibilities. Business has by no means ceased, but possibly the anticipated boom will not fully materialize until the restoration of peace. However, conditions brought about by the war seem to be reaching a chronic state to which people are rapidly adjusting themselves, and the Scandinavian nations are like many others in that they have to an appreciable extent actually profited financially by war demands.

South America, where a year ago dire results from the war were anticipated and doleful predictions as to the future were the rule, is, in its principal markets, another quarter of the globe where unexpected benefits have been derived from the deplorable continued existence of the war in Europe. Argentina especially is counting a "favorable balance of trade" which is comparable to that of the United States. The demand for Argentine grain and meats and hides has brought and is still bringing a flood of gold to Buenos Aires, and all business there is feeling the resulting stimulus. Even Chile, which could see nothing but the blackest of prospects because of the absolute stoppage of shipments of nitrate for agricultural purposes to certain of



In many of Holland's motor boats Roberts motors are used

A type of motor boat which is very popular in foreign waters as a cargo carrier

the European countries, has found compensation in the same trade through the increased demand for nitrates for the manufacture of explosives. The effect of reviving prosperity in the principal South American nations must make itself felt in the buying power and disposition of their peoples. Yet in a way it is well-nigh incomprehensible that the obvious, indeed imperative, need of transportation which can in so many quarters be met by the further introduction of motor boats has not been more quickly recognized by the people of all of Latin America. More "educational" work by our manufacturers may be desirable.

Central America seems to have profited just enough by preliminary experiments in motor boat transportation to have demonstrated its advantages. If progress along this line has been retarded, that result may be attributed partly to the comparatively severe effects of the European war on commerce in that quarter, but even more largely to the apparently natural inertia of the people of those States. Motor boats are by no means unknown on many of the Central American rivers and lakes, one of the most recent developments perhaps being an installation of a motor boat service on one of the large lakes of Honduras by an American concern. The writer, on a visit to Central America last spring, found motor launches and towboats for lighters awaiting arriving steamers all along the coasts, as they are also notable in similar capacities throughout the West Indies. In fact, a certain amount of coastwise travel is nowadays performed in motor boats, but it is to be noted that they are largely owned or controlled by men from the United States. Much more in these several directions is certain to be accomplished when the native merchants and traders are thoroughly awakened to the opportunity of developing business through this means of transportation. But motor builders who seek this trade must supply "fool-proof" engines. The average native who must be depended upon to run our motors is by no means to be regarded as an expert engineer, and delicate adjustments suffer promptly when entrusted to his hands. This may be the explanation of why two or three motor boats shipped to the interior of Guatemala have for many months been laid up out of commission. On the other hand, the types of motor installations which one notes at Livingston, engaged in commercial transportation and in towing barges on the Rio Dulce, are interesting as well as encouraging, including not only propeller boats but stern-wheelers adapted for the shallow waters along the coasts and on the upper reaches of this important river.

The various directions which the activities of our motor engine manufacturers have taken have perhaps been governed by chance, but well illustrate the manifold opportunities for our enterprise, which are almost identical in foreign countries with those we know here at home. One motor, for example, has become especially well known on the famous canals of Holland, installed both directly in canal boats and in smaller vessels for towing independent boats. Another prominent American manufacturer has specialized in speed boats for the beautiful harbors of New Zealand and Australia. Another has gone in for pleasure boats on Swiss lakes, and still others have paid the greater part of the attention they have given to foreign trade to the fishing boats of Scotland and of Scandinavia, as has been suggested.

A Dutch craft combining work and pleasure

Not least notable in the development of the export trade in motors has been the extraordinary growth in the demand for our little outboard motors whose popularity has spread like wildfire all over the world. Perhaps no more extraordinary combinations are to be found than the proas and catamarans of the East India Islands, equipped with American outboard motors.

Among the strikingly encouraging features of the export trade in American motors is the increasing demand for quality engines. Foreign buyers are learning that in marine motors as in so many other lines, the cheapest is not always the most desirable, and that reliable manufacturers who ask a little more money for their motors than do some of their competitors have a reason for so doing which it is worth while considering. The result is found in the increasing confidence which foreign buyers are everywhere giving to those American motors which they have learned are always to be depended upon. In former articles contributed to this magazine, the present writer has urged that manufacturers spend a little money on improved finish of the motors which they ship to foreign countries. There is reason to believe that this practice has become more general, and perhaps is contributing to the growing regard in which our motors are, without any question at all, now held. The marine motor manufacturer, like many another, must remember that in the majority of cases it is the first impression that counts for or against his product. When a motor is unpacked by a foreign buyer the first thing which impresses him is its appearance as it lies on his warehouse floor. If that appearance is not prepossessing, if the machine seems crude and rough, a prejudice against it may be created which it will be difficult for the most satisfactory performance in the water to remove.

It is probable that some American manufacturers of motors have been misled, as have been manufacturers in general, by the current amateur and irresponsible talk in the newspapers of the "long credit terms" which it is said must be extended if our export trade is "to grow." The marvelous development of actual business in marine motors on terms entirely satisfactory to our manufacturers should be enough to refute this unfortunately

(*Continued on page* 86)

A Lawley-built,
Hand design type of boat
being built to demonstrate to a certain government
the value of motor boats in war time. Six of these 40-footers have been built with 135 h.p. Sterling motors

REPRESENTATIVE AMERICAN MOTOR YACHTS of 1915

Why Employ a Naval Architect?

The Reasons Why it is Not Only More Satisfactory, but Far Cheaper in the End to Have the Boat Designed, Not Merely Built—Practical Suggestions by a Practical Man

By William Atkin

THIS is the genuine, honest-to-goodness confession of the convictions and beliefs of a former boat building. It is written after ten years of ten to twelve hours a day, Sundays and holidays included, amid shavings of cedar, oak and pine, the scent of copper paint, of oakum and of varnish; within sound of the caulkers' mallets, tapping, tapping, the slap, slap, slap of the line-shaft belting; and within sight of the steam as it escapes by the steam box door, wafted this way and that on the breath of the west wind; too, there is the ponderous gearing of the railways, spare roller boxes helter-skelter along the tracks, and best of all the cozy drafting room with pictures here and there about the walls showing craft of years gone by. Here, sometimes when the rain comes rap-tappin' across the roof the mind catches visions of a glorious craft that some day you and I must complete to sail beyond the silent starlit sea of time.

When a man contemplates the past and realizes how at various times he has scraped a season's coating of barnacles, sponges and slime off the underbody of some old hooker, sandpapered a copper-painted bottom when the sun shone hot and the body perspired, burned off paint and varnish, applied paint, caulked, puttied, carpentered, bent frames, riveted, cleaned out greasy bilges, bored shaft alleys, rigged, fitted boat covers, painted letters, gold-leafed cove scrolls, repaired rudders, shoes, window frames, companion slides and doors—in fact, worked at every branch of boat building and repairing, besides making engine repairs, he begins to believe he has a smattering of the modern boat-builder's art. When all this is preceded by precious years of study of naval architecture and its allied sciences with several hours a day spent on the edge of a drafting board, it appears that such a man should know something about designing, too. A man like this is the kind of a man to whom you should entrust the building of your boat. If you cannot locate such a builder, commission a naval architect, then locate an experienced builder so that combined they may create the best kind of a boat for your particular needs. The first cost, of necessity, will be greater, although eventually it will be cheaper. An improperly designed and built boat is worth less to every one concerned—the owner, the architect, the builder and the future buyer, than a craft correctly designed and built, even though it contains in its construction the same amount of material, equipment and labor.

So its pays every time to seek a successful designer and an experienced builder. It is a combination worth while, for when your boat is complete, you will have a real boat at a fair price and not a combination of misfit ideas, partially developed, costing nearly as much as the real boat and eventually costing more. There are far too many of us who try always to receive seventy-five dollars' worth of anything under the sun for fifty dollars' worth of cash. It can't be done. Some one pays the difference and there is always dissatisfaction and disappointment on account of it.

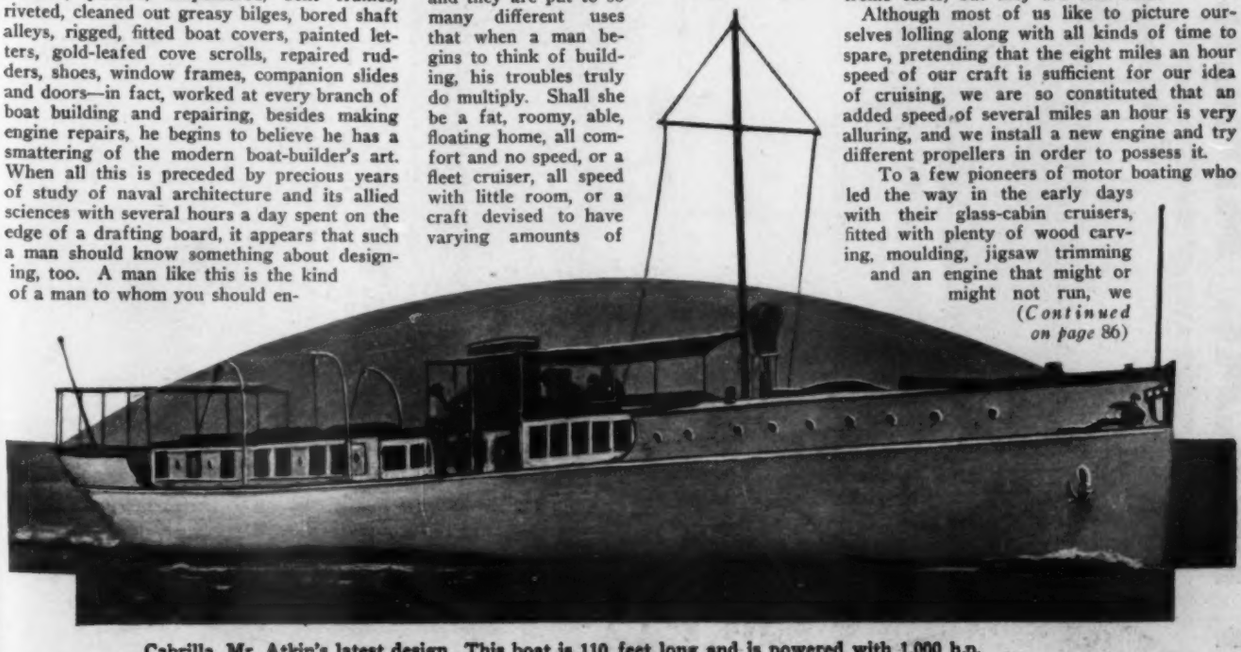
There are so many different kinds of boats and they are put to so many different uses that when a man begins to think of building, his troubles truly do multiply. Shall she be a fat, roomy, able, floating home, all comfort and no speed, or a fleet cruiser, all speed with little room, or a craft devised to have varying amounts of both? Designing a boat is a continuous performance of give and take. There is no end to the various types that may be created, but also there is no way to incorporate the advantage of all of these into one boat. We all have our ideas as to just the type of boat desired, and these ideas usually simmer down to two or three cardinal features about which the rest of the boat is built.

There was a man once who desired and wished above all things to have the icebox and motor centrally located in a proposed boat. To accomplish this his plan was to build the ice chest over the engine (extending it to the deck so that it might be filled through a hatch), where being in the center of the craft it would not affect the trim of the boat whether it was full or empty. The tentative plans of this boat were centered about the icebox. With this man everything else in the plan gave way to the location, size and finish of an ice chest. Another time a woman had drawn on her studio floor a general plan for a cabin launch to be used only for deep sea fishing, its motif being fishing poles and tackle. The rest of the plan fitted around the racks and closets for various angling equipment. These two are perhaps extreme cases, but they are real ones.

Although most of us like to picture ourselves lolling along with all kinds of time to spare, pretending that the eight miles an hour speed of our craft is sufficient for our idea of cruising, we are so constituted that an added speed of several miles an hour is very alluring, and we install a new engine and try different propellers in order to possess it.

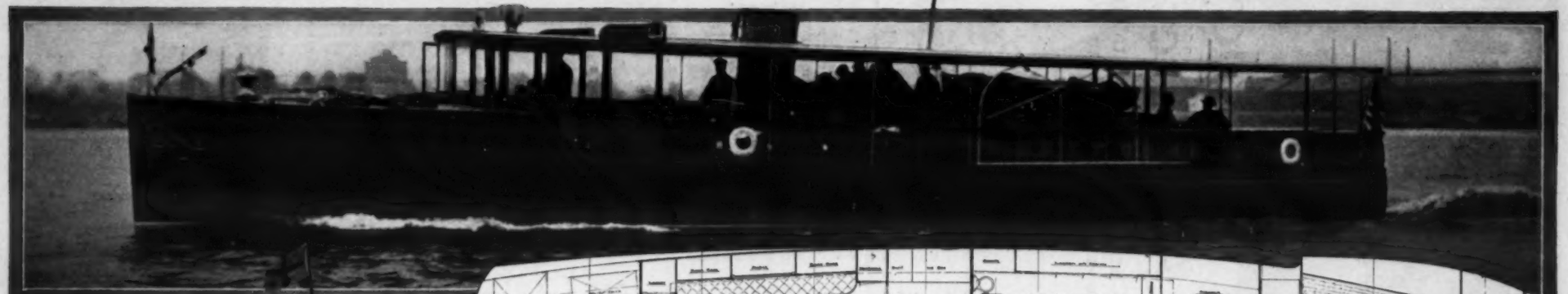
To a few pioneers of motor boating who led the way in the early days with their glass-cabin cruisers, fitted with plenty of wood carving, moulding, jigsaw trimming and an engine that might or might not run, we

(*Continued on page 86*)

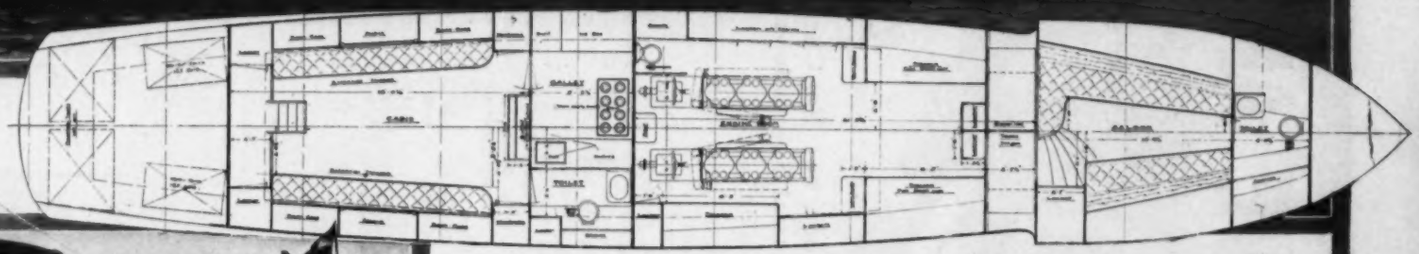


Cabrilla, Mr. Atkin's latest design. This boat is 110 feet long and is powered with 1,000 h.p.

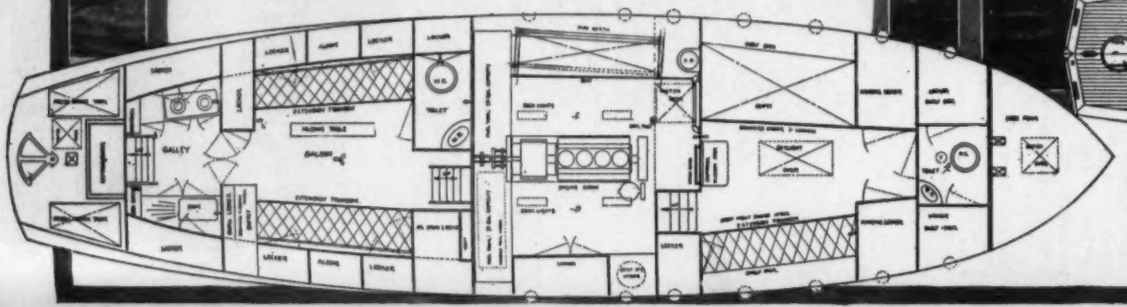
TYPICAL AMERICAN MOTOR YACHTS of 1915

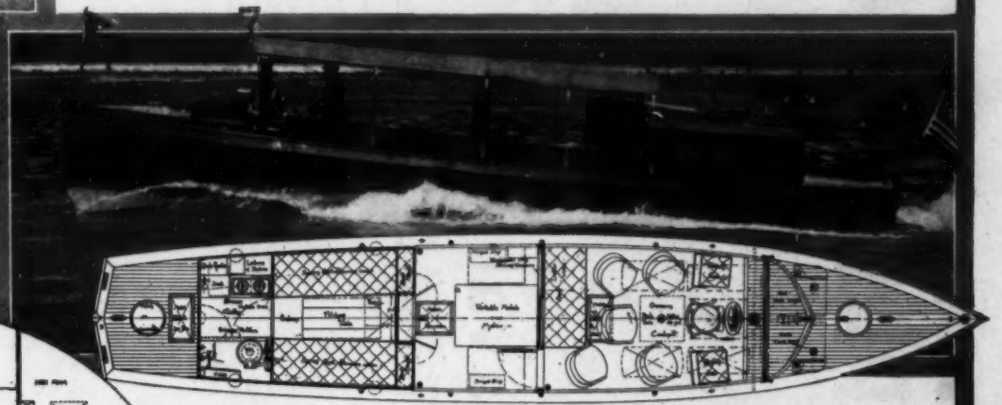


Marilene II, flag-ship of Commodore Williams, of the Huguenot Yacht Club, represents a typical 1915 design. Her length of 45 feet and beam of 12 feet are but a small indication of the size of this cruiser. She was designed by Morris M. Whitaker, of Nyack, N. Y., and built by Oscar Anderson, of Norwalk, Conn. Her motive power is a 4-cylinder 7¼ x 8½ Loew-Victor, which gives Marilene a speed of nearly 13 miles an hour. The interior arrangement plan of this boat is shown below and represents an ideal lay-out for a 45-foot boat.



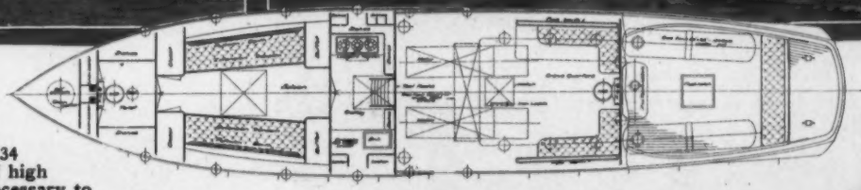
Enchantress II, designed by Bowes & Mower, of Philadelphia, and built by the Mathis Yacht Building Co., of Camden, N. J., represents a type of express cruiser which was brought out for the first time in 1915. Powered with two 175 h.p. Harbeck Loew-Victor motors, having a bore of 7.6 inches and a stroke of 8.5 inches, this boat develops a speed in excess of 20 miles an hour. Her length is 74½ feet and her beam 13 feet.



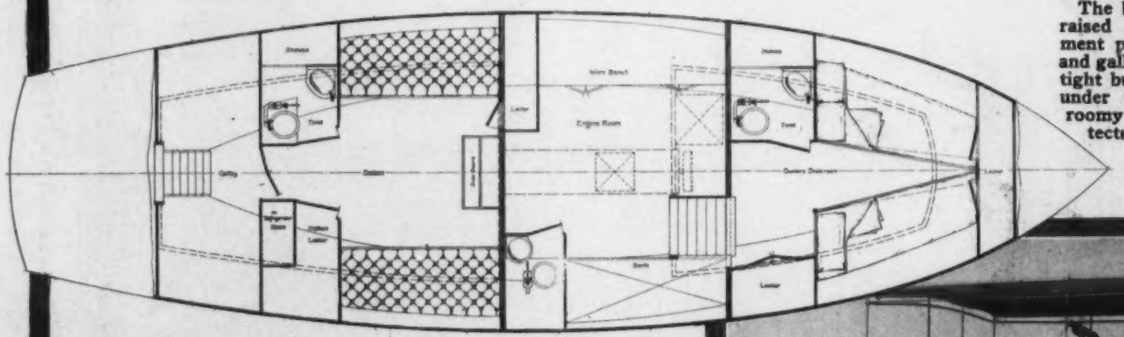


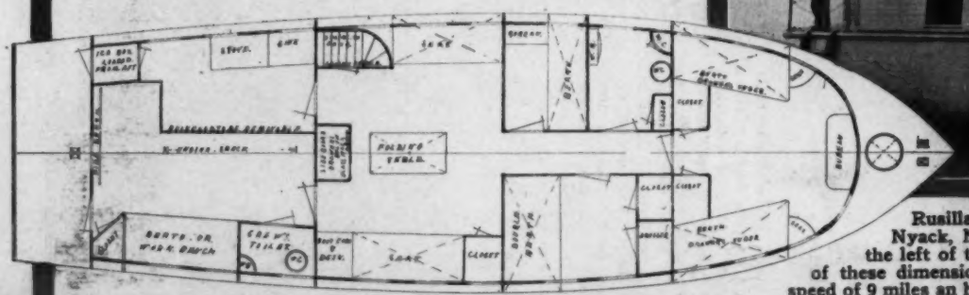
Brown Betty, a 40-foot Seabury built cruiser from designs by Tams, Lemoine & Crane, of New York City, and powered with an 8-cylinder, 150 h.p. Sterling motor. This boat, although she has a beam of only 7 feet 6 inches, is laid out in such a way as to make a comfortable day cruiser with an extra large cockpit and a small shelter cabin aft. A speed of 21 miles an hour is claimed for Brown Betty

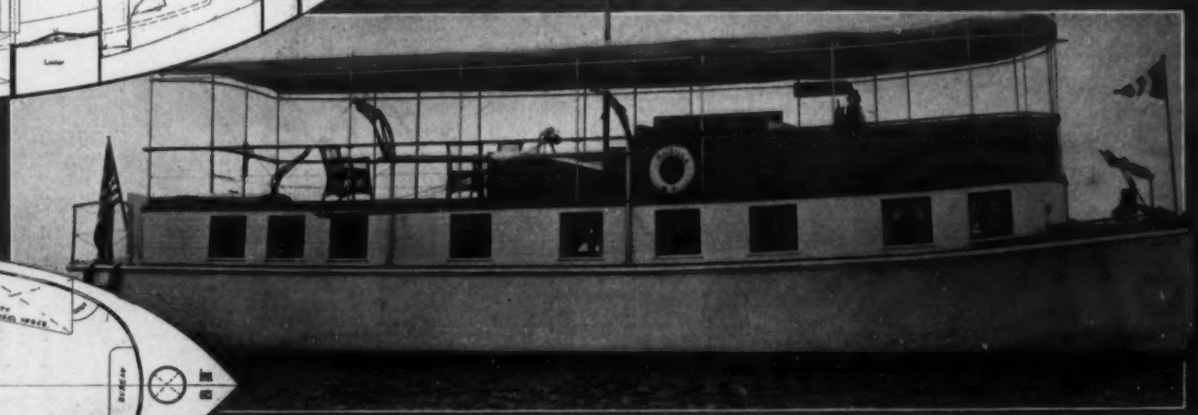
Tilly, designed and built by Frederic S. Nock, of East Greenwich, R. I., and powered with a 6-cylinder Ralaco motor with electric starter and all up-to-date engine equipment. This boat measures 48 feet over all, has a beam of 14 feet, and a draft of 34 inches. The particular feature about this boat is the absence of high superstructure, mast, etc., as she is used on waters where it is necessary to pass under low bridges. All hand rails, seat backs and other fittings above the deck house are removable, and the awning stanchions are hinged so as to allow them to drop down flush with the deck when occasion demands



Raccoon, a 50-foot V-bottom express cruiser designed by William H. Hand, Jr., of New Bedford, Mass., and built by George Lawley and Sons, Inc., of Neponset, Mass., which, with two 6-cylinder Van Blerck motors, develops a speed in excess of 24 miles an hour. This boat was developed by her designer, is strictly a 1915 production, and is an example of the possibilities of the V type of underbody for boats of 50 feet in length. The boat is splendidly built and attractively finished throughout, with a long raised deck forward terminating at the bridge deck amidships. The arrangement plan shown above gives the interior layout of Raccoon, with a large cabin and galley forward of the engine-room and separated from the latter by a watertight bulkhead. The engine room is located amidships, part of the motor being under the bridge deck, and part under a low house aft of the bridge. The roomy self-bailing cockpit is at the extreme stern, and a large windshield protects the owner and his guests in the cockpit from spray

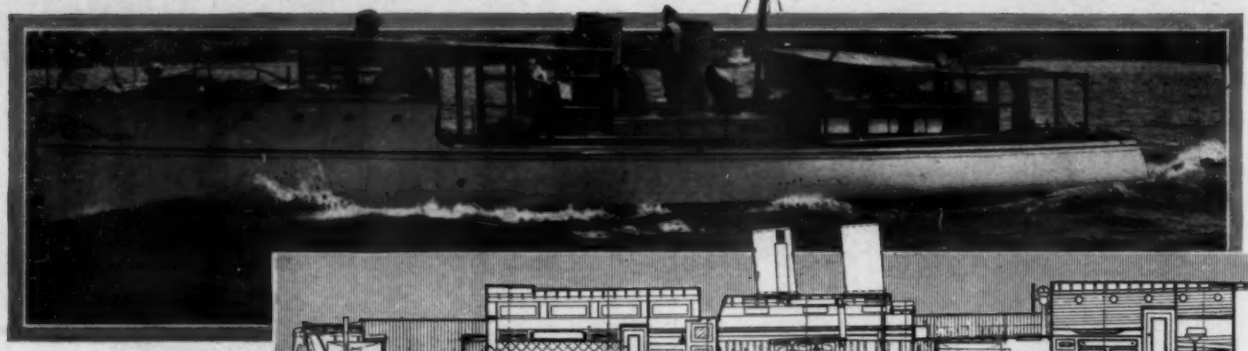


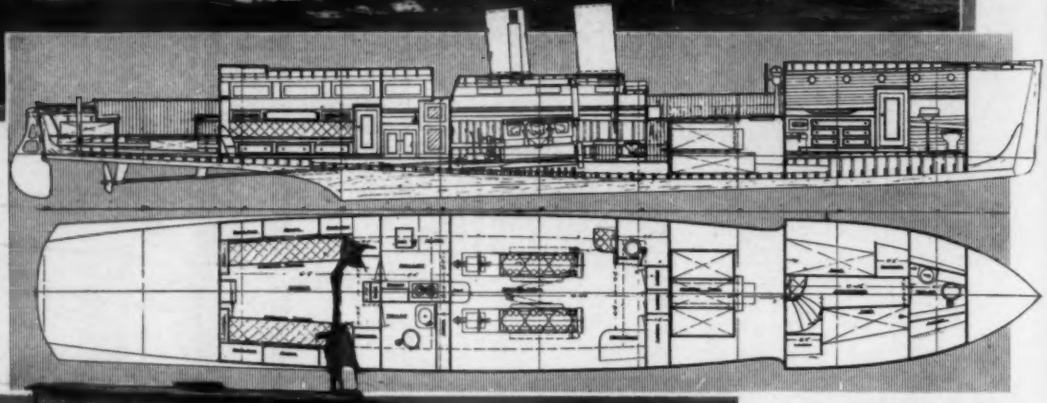




Rusilla, a 51-foot 1915 motor houseboat, designed by Howard Locke and built by Arthur M. Gage, of Nyack, N. Y., for Russell Howland, of New York City. The interior arrangement plan of Rusilla shown at the left of this page gives one an idea of the amount of living accommodations which are to be had in a boat of these dimensions. Rusilla is powered with a 32-37 h.p. 4-cylinder Standard motor, which gives her a cruising speed of 9 miles an hour

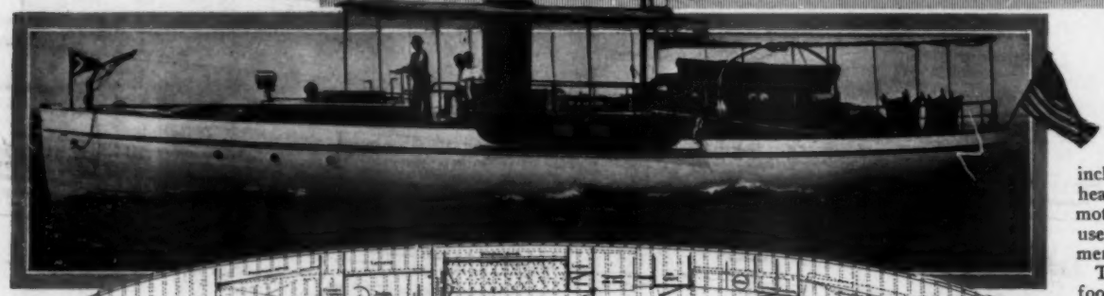
Six High Class Motor Yachts

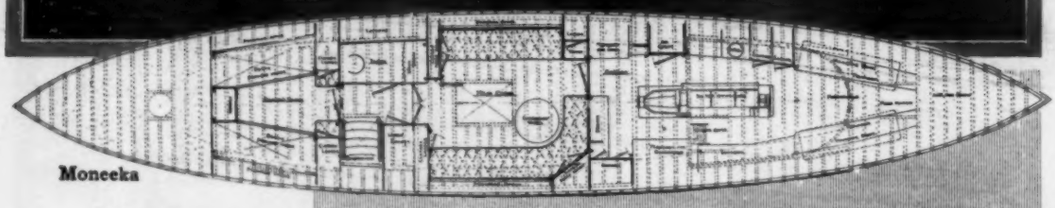




AKBAR is the 72½-foot express cruiser designed by Bowes & Mower, of Philadelphia, which Commodore George W. Childs Drexel, of the Corinthian Yacht Club, of Philadelphia, uses at his summer home at Islesboro, Maine, and incidentally used for a couple of trips between Philadelphia and his summer home. This boat is powered with two 6-cylinder Harbeck Loew-Victor motors, of 190 h.p. each, which give Akbar a cruising speed of 22 miles an hour. The design of this boat represents the most up-to-date practice for high speed express cruisers of this type.

Plans of Akbar and sectional profile

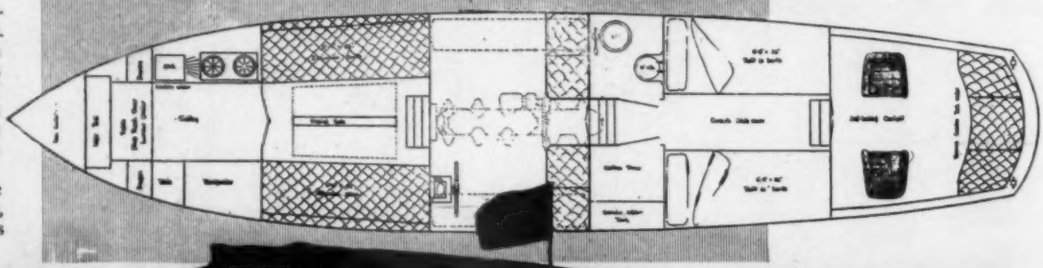




Moneeka

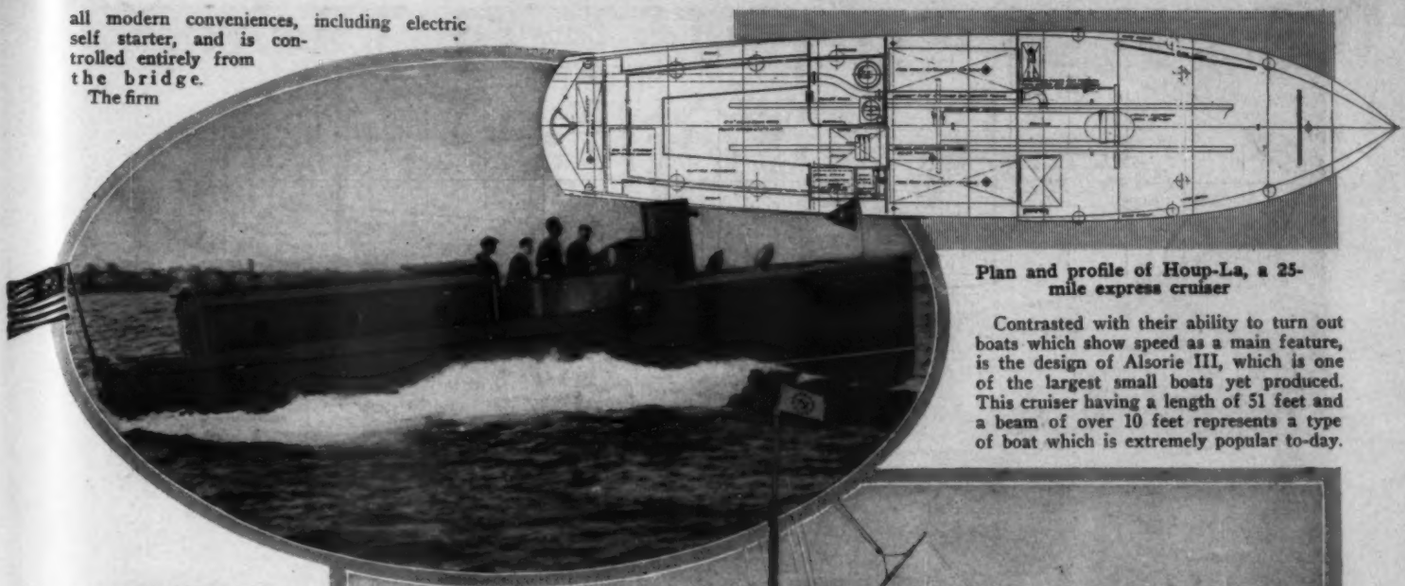
Moneeka is from the boards of Arthur Binney, of Boston, Mass., and is 64 feet long by a beam of 11½ feet. She is powered with one of the new 5½x8-inch 6-cylinder enclosed heavy-duty Sterling motors, and has been in use during the past summer on Lake Champlain.

The success of the 40-foot stock model modified V-bottom military type express cruiser Pegasus has prompted her builders, the St. Louis Yacht & Boat Co., to bring out a 48-footer of the same general type to carry an 8-cylinder engine for speeds of 23 to 25 miles an hour. Pegasus is equipped with



Pegasus, a bridge-deck type of cruiser featured by the St. Louis Yacht and Boat Co.

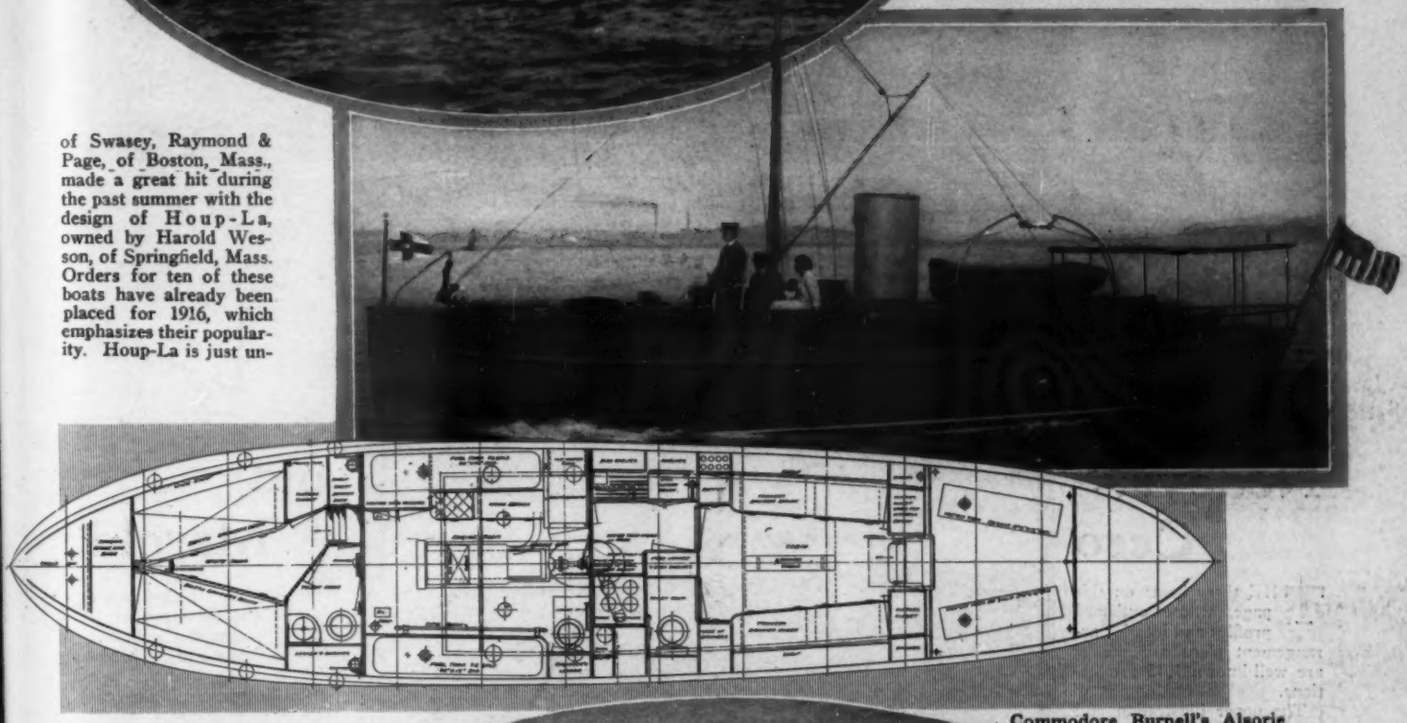
all modern conveniences, including electric self starter, and is controlled entirely from the bridge. The firm



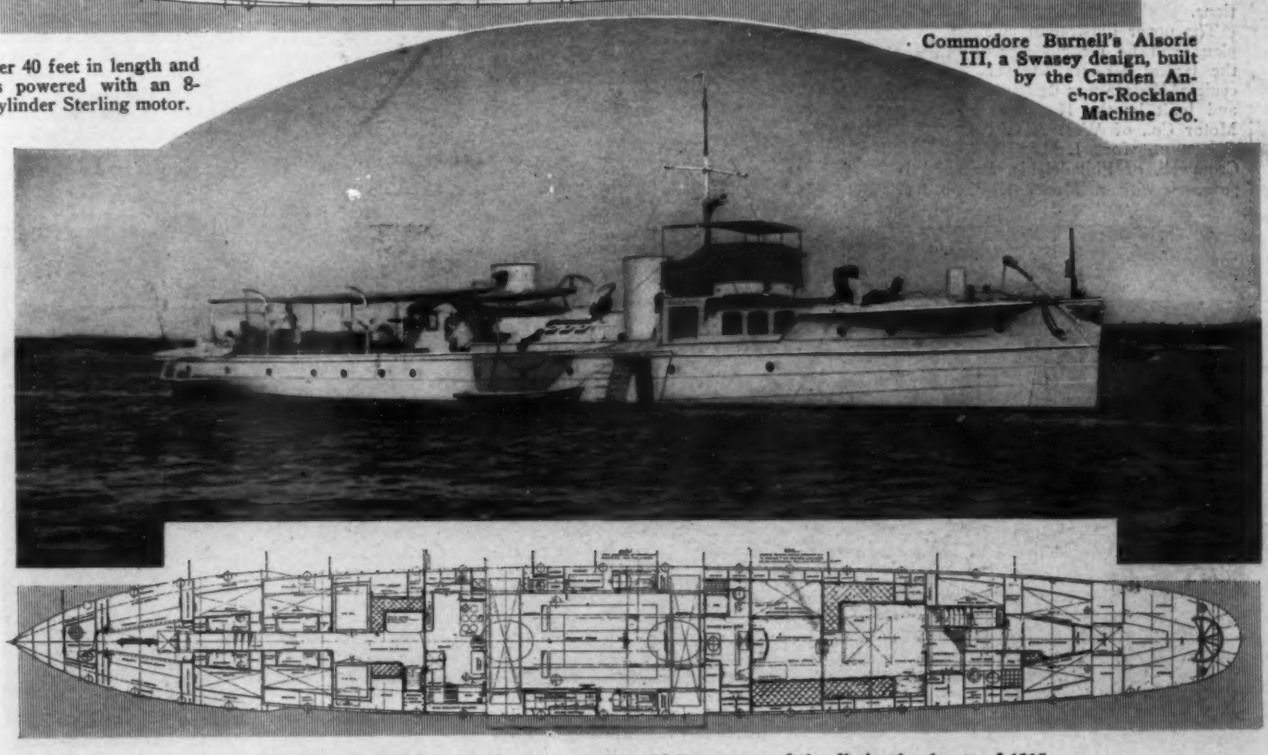
Plan and profile of Houp-La, a 25-mile express cruiser

Contrasted with their ability to turn out boats which show speed as a main feature, is the design of Alsorie III, which is one of the largest small boats yet produced. This cruiser having a length of 51 feet and a beam of over 10 feet represents a type of boat which is extremely popular to-day.

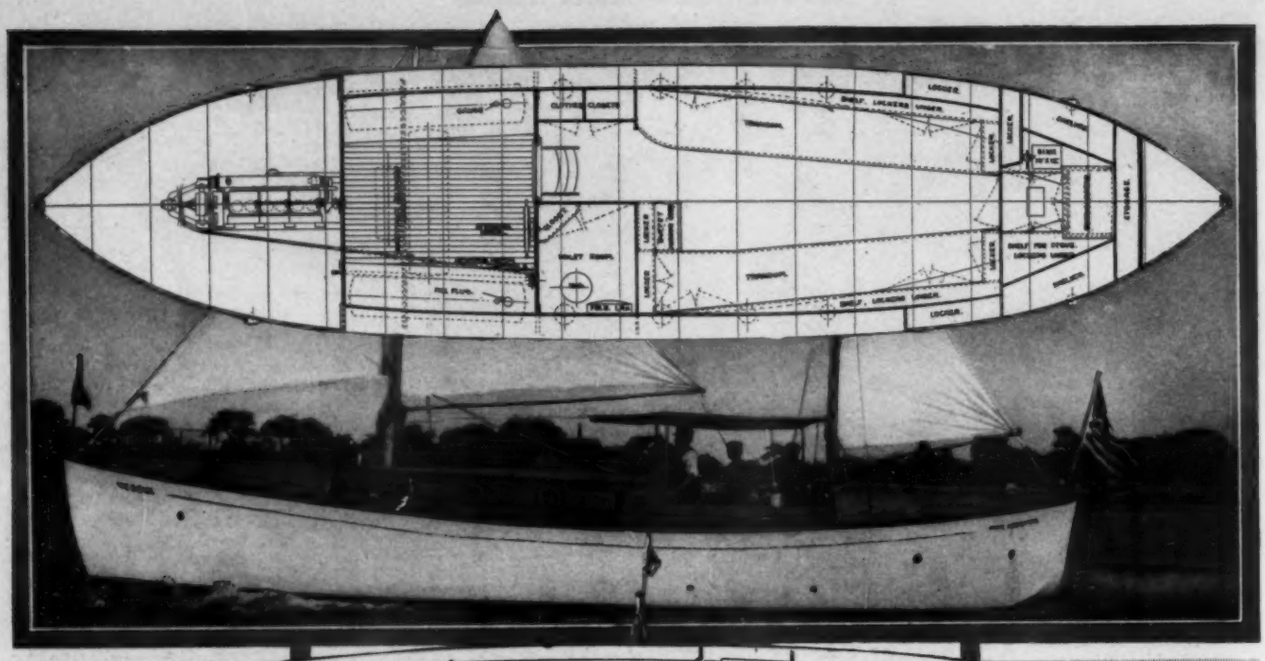
of Swasey, Raymond & Page, of Boston, Mass., made a great hit during the past summer with the design of Houp-La, owned by Harold Wesson, of Springfield, Mass. Orders for ten of these boats have already been placed for 1916, which emphasizes their popularity. Houp-La is just under 40 feet in length and is powered with an 8-cylinder Sterling motor.

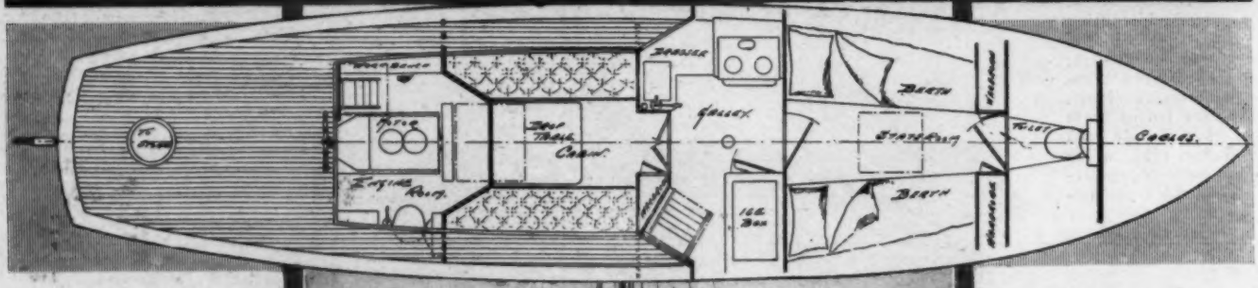


Commodore Burnell's Alsorie III, a Swasey design, built by the Camden Anchor-Rockland Machine Co.



Paragon, the 120-foot steel motor yacht which was one of the distinctive boats of 1915





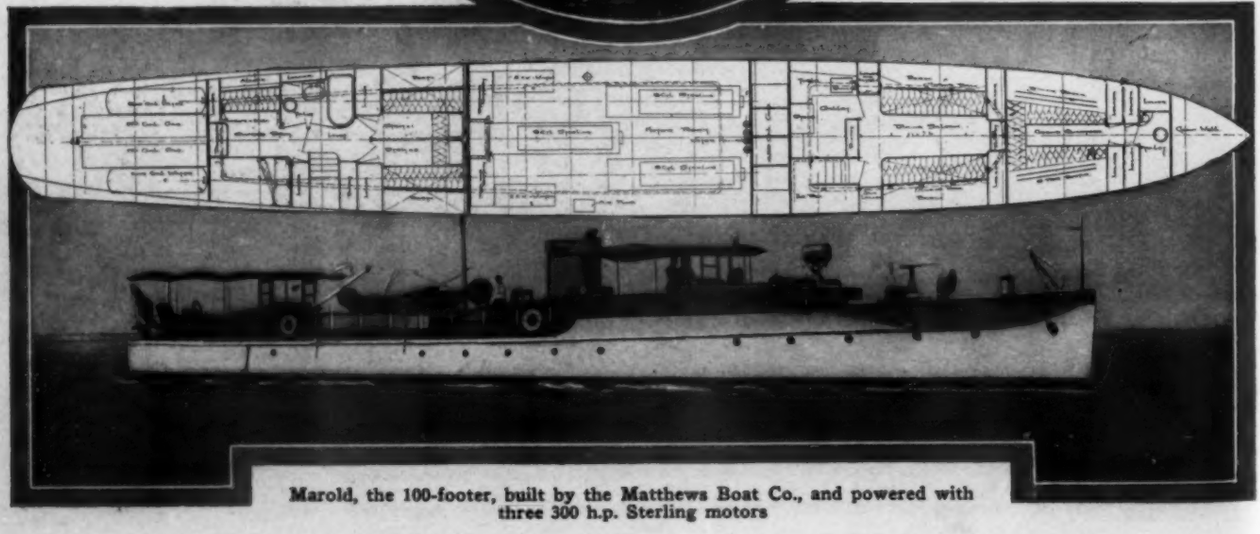
Nedeva, Cero and Marold

THE three boats on this page, whose outboard profiles and interior arrangement plans are shown, are well-known 1915 productions.

The upper illustration and plans will be recognized as the typical Holmes lifeboat cruiser. Nedeva was designed and built by the Holmes Motor Co., of West Mystic, Conn., for J. H. R. Cromwell, of Philadelphia, Pa., and is powered with a Model K 35-40 h.p. Holmes motor, located in the after cabin. The cruiser is 41 feet in length, by 9 feet 4 inches beam and 37 inches draft.

The illustrations in the center of the page are of Cero, a 40-foot Luders boat, powered with a two-cylinder, four-cycle Mianus motor.

Marold is the new 100-footer, designed and built by the Matthews Boat Co., of Port Clinton, Ohio, and powered with three 300 h.p. Sterling motors.



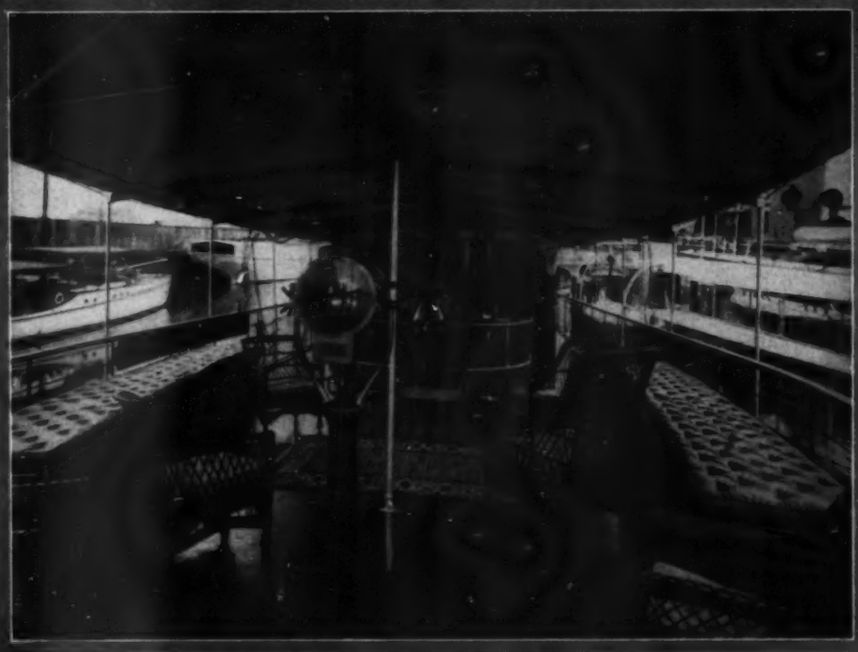
Marold, the 100-footer, built by the Matthews Boat Co., and powered with three 300 h.p. Sterling motors

. . . A SEA-GOING . . .
MOTOR HOUSE YACHT

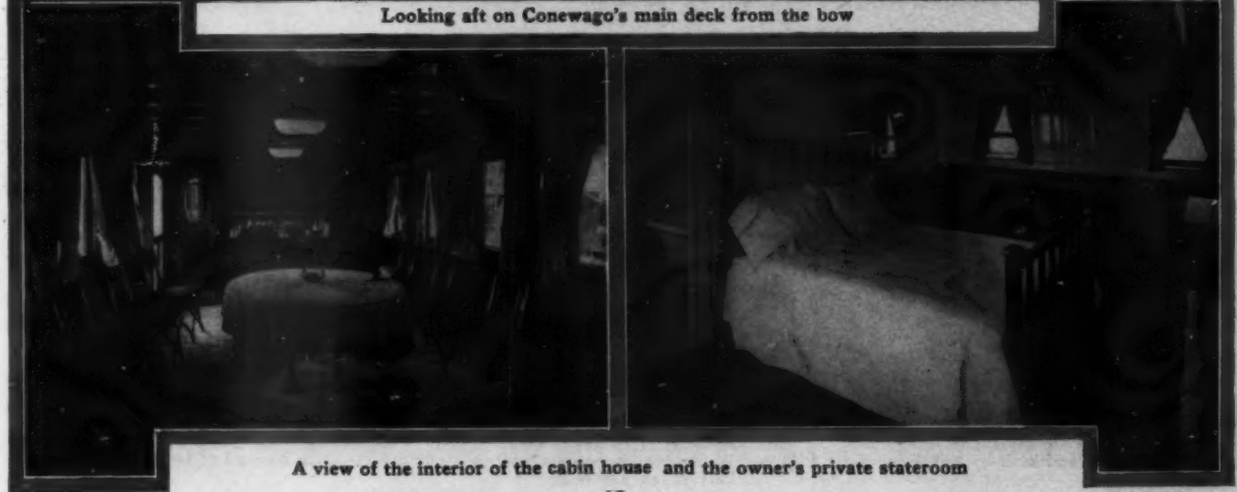
THIS craft was built for Hon. James D. Cameron from designs by Messrs. Gielow & Orr, New York City. She is constructed of wood in a thoroughly substantial manner, and her principal dimensions are as follows: Length overall, 100 feet; length on load waterline, 90 feet 9 inches; beam, under guards, 18 feet; and she has a draft of 3 feet when fully loaded.

In appearance this craft bears a very close resemblance to a large, beamy motor yacht, the only noticeable difference being the square windows instead of the usual circular air ports. In other words, she combines the useful seagoing features of the motor boat with the light and ventilation of a house boat.

Her accommodations consist of the owner's stateroom, 11 feet by 15 feet; six guests' staterooms, two bathrooms, and a large trunk and storeroom below the main deck. Aft of this is



Looking aft on Conewago's main deck from the bow



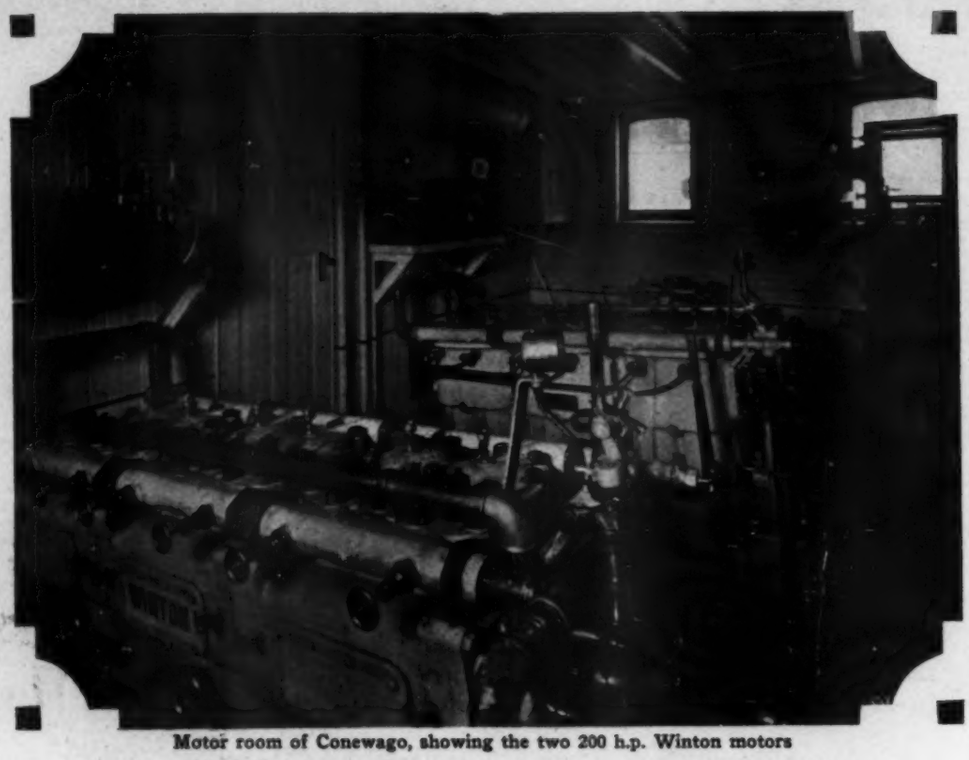
A view of the interior of the cabin house and the owner's private stateroom

Photographs by Levick

a large galley, with an ice box, etc. Then comes the engine - room, and finally the accommodations for the officers and crew; the latter having a floor space of 260 square feet. She has a deck house of mahogany 35 feet in length by 10 feet in width, arranged with the observation and smoking room in the forward end, 11 feet in length; next a dining room 16 feet long, and aft of this is a pantry 8 feet long, with a dumbwaiter leading to the galley below.

Her propelling machinery consists of a pair of Winton engines, each having six cylinders, 6½ inches bore by 9 inches stroke of piston. They are capable of driving her at a maximum speed of 11 knots, and at a normal cruising speed of 10 knots per hour. Her gasoline tanks have a capacity sufficient to give her a cruising radius of 1,200 miles.

Her run from the builder's yard at Manitowoc, Minn., to New York, a distance of 3,186 miles, was made in 13 days and 7 hours, actual running time.



Motor room of Conewago, showing the two 200 h.p. Winton motors

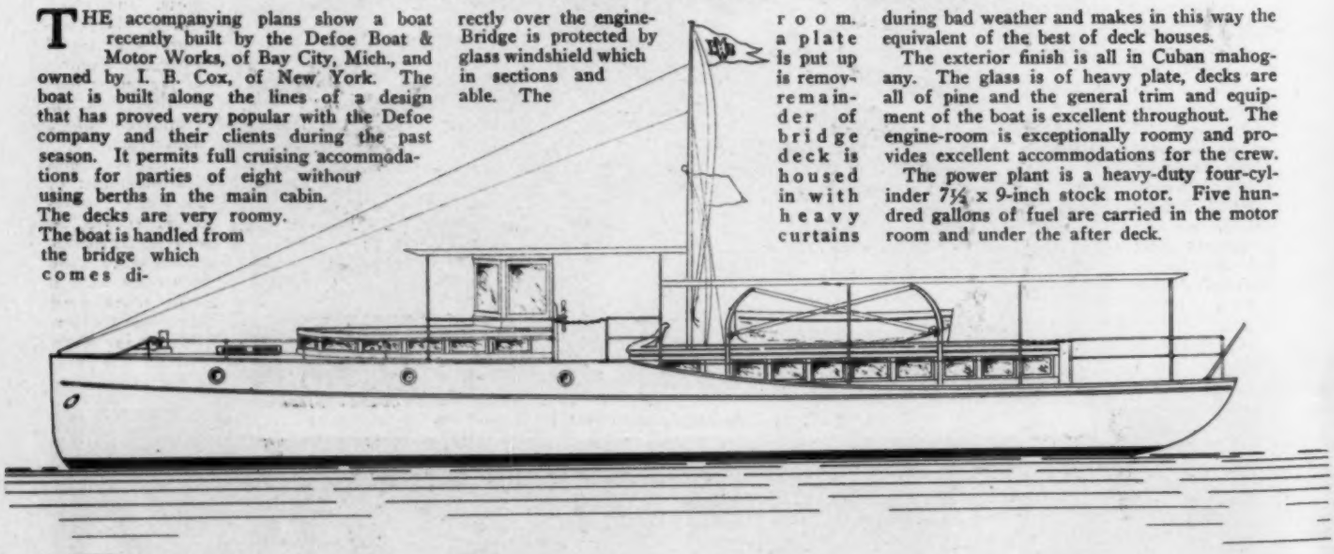
A 65x13-Foot Cruiser

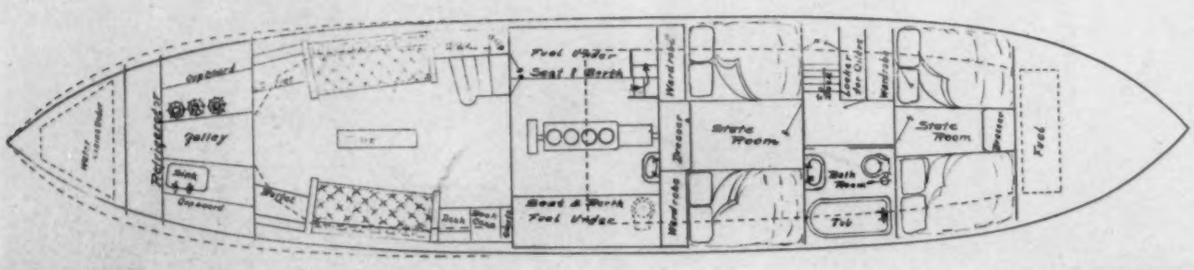
A Boat With Fifty Horsepower Giving a Cruising Speed of Twelve and a Half Miles per Hour with a Fuel Consumption of Only Four Gallons per Hour

THE accompanying plans show a boat recently built by the Defoe Boat & Motor Works, of Bay City, Mich., and owned by I. B. Cox, of New York. The boat is built along the lines of a design that has proved very popular with the Defoe company and their clients during the past season. It permits full cruising accommodations for parties of eight without using berths in the main cabin. The decks are very roomy. The boat is handled from the bridge which comes directly over the engine-room. Bridge is protected by glass windshield which is removable in sections and the remainder of bridge deck is housed in with heavy curtains during bad weather and makes in this way the equivalent of the best of deck houses.

The exterior finish is all in Cuban mahogany. The glass is of heavy plate, decks are all of pine and the general trim and equipment of the boat is excellent throughout. The engine-room is exceptionally roomy and provides excellent accommodations for the crew.

The power plant is a heavy-duty four-cylinder 7½ x 9-inch stock motor. Five hundred gallons of fuel are carried in the motor room and under the after deck.





Cruiser designed and built by the Defoe Boat & Motor Works which, powered with a stock motor, gives a speed of twelve and one-half miles per hour

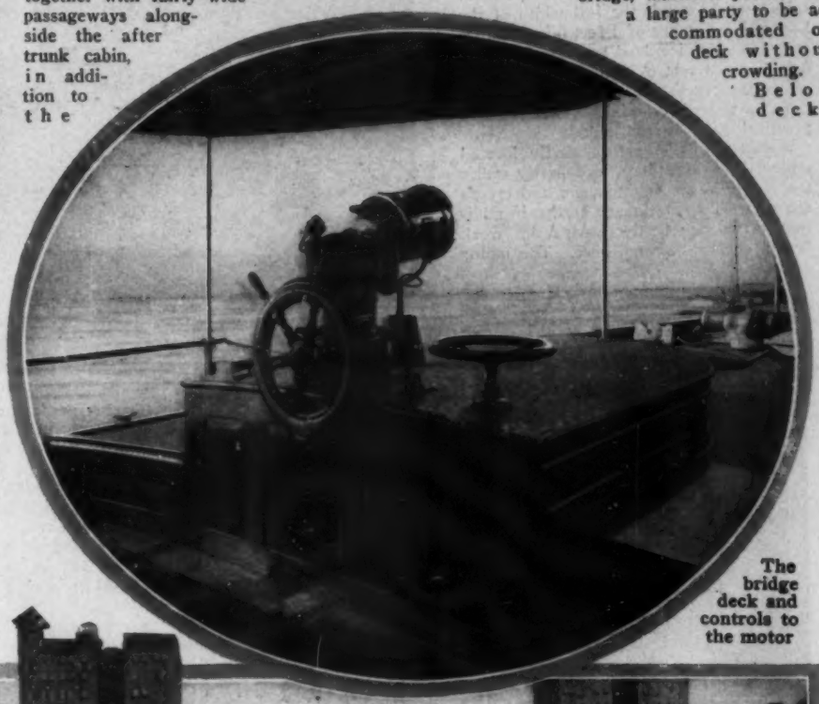
A 55-Foot Cruiser with Bridge

Hauver II, the Latest Addition to the Fleet of the New York Motor Boat Club—A Cruiser Equally Serviceable for River or Sound Trips

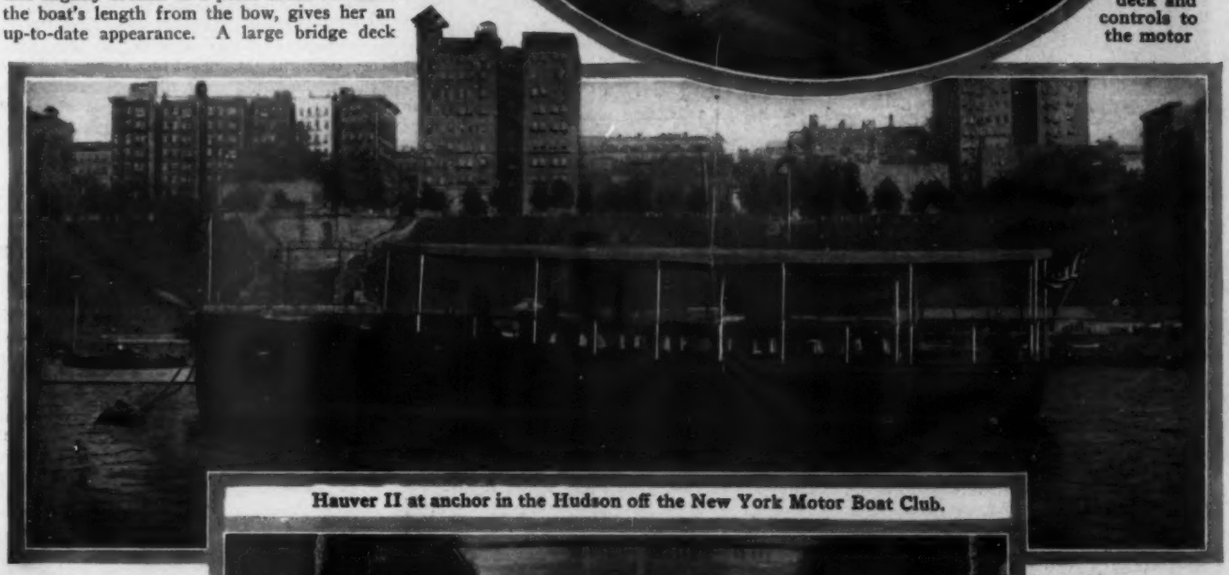
THE New York Yacht, Launch & Engine Co., of Morris Heights, N. Y., have been especially active during the past season, and have produced a number of most excellent types of motor yachts, one of the latest to be put into commission being Hauver II. This motor yacht was designed and built especially for A. G. Hauver, of New York City, a comparatively new comer into the game, having purchased his first motor boat, Hauver I, from the same firm hardly more than a year ago. The success with his first boat, which was 40 feet in length, had a great deal to do with making Mr. Hauver return to the New York Yacht, Launch & Engine Co. for his second craft, Hauver II, this time a 55-footer, with a beam of 13 feet 6 inches and a draft of 3 feet 6 inches.

The boat was designed and built primarily for cruising and week-end trips on the Hudson River, but many good features have been embodied in her design, and her construction is made strong enough to permit Hauver II being navigated on any waters. The beam of 13½ feet, which is slightly more than the average cruiser of this length is given, permits an interior lay-out the principal feature of which is roominess.

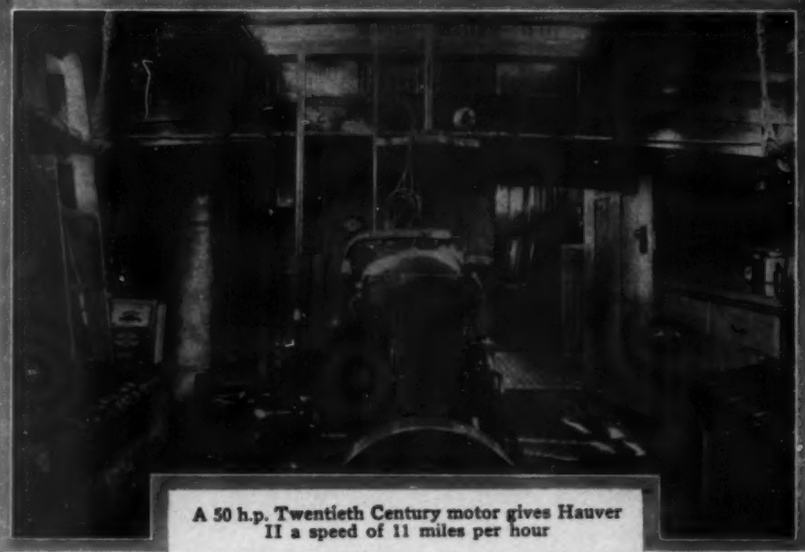
The outboard profile of Hauver II is especially pleasing to the eye. A graceful sheer line slightly broken at a point about one-third the boat's length from the bow, gives her an up-to-date appearance. A large bridge deck together with fairly wide passageways alongside the after trunk cabin, in addition to the bridge, makes it possible for a large party to be accommodated on deck without crowding. Below decks is located well forward, which allows the helmsman a clear view forward at all times, a very important feature for boats navigating the lower Hudson, which at times is noted for its large amount of floating driftwood. At the helmsman's position there are full controls to the engine-room and motor and also to the reverse gear and clutch, which makes Hauver II a one-man boat. A searchlight and binnacle are located just forward of a large mahogany steering wheel.



The bridge deck and controls to the motor



Hauver II at anchor in the Hudson off the New York Motor Boat Club.



A 50 h.p. Twentieth Century motor gives Hauver II a speed of 11 miles per hour

A large after deck, there is a large double stateroom aft with a built-in dresser and exceptionally large lockers and storage closets in addition to the usual fittings found in a room of this kind. Forward of the stateroom there is a large bathroom on the port side. Opposite this there is a companionway leading to the main deck.

The main saloon or dining-room is situated forward of these, and just aft of the galley. This saloon is exceptionally roomy, and is fitted in the center

Photographs by Levick

with a fixed table with folding leaves, which, when opened up, measures 4 x 5 feet, and allows twelve persons to be comfortably seated around it at one time. The room is also fitted with two folding Pullman berths, 4 feet 6 inches in width, several lockers, and a built-in buffet.

The galley opens directly into the main saloon, and extends the full width of the boat and a distance of 4 feet 6 inches fore and aft. An ice box measuring 4 feet 6 inches x 3 feet 6 inches in depth, with stove, dish racks, sink, and the usual fittings, make an especially attractive and practical galley arrangement.

Forward of the galley, partly located under the bridge deck, and partly under the trunk, is the engine-room and crew's quarters. Two stationary berths, in addition to two pipe berths, wash room, work bench, etc., are located here. The motor is a 4-cylinder, 6½ x 8½, 50 h.p., 20th Century, which turns a 32 x 38-inch 3-bladed propeller 440 r.p.m. and gives Hauver II a speed of about 11 miles per hour. An auxiliary engine for electric lighting and a complete electric equipment are also located in the engine-room.

Both forward and after houses, as well as the sheer strake, are of mahogany, and the interior is of the finest African mahogany.

From the bridge aft Hauver II is covered by a khaki awning from which side curtains may be suspended, and a railing is run around the boat aft of the raised deck. The awning, together with the funnel just forward of amidships, gives this craft the appearance of being much longer than her actual inches. A dinghy is carried on the after cabin trunk.

Twelve persons can be seated at one time in the dining saloon

A real man-size galley

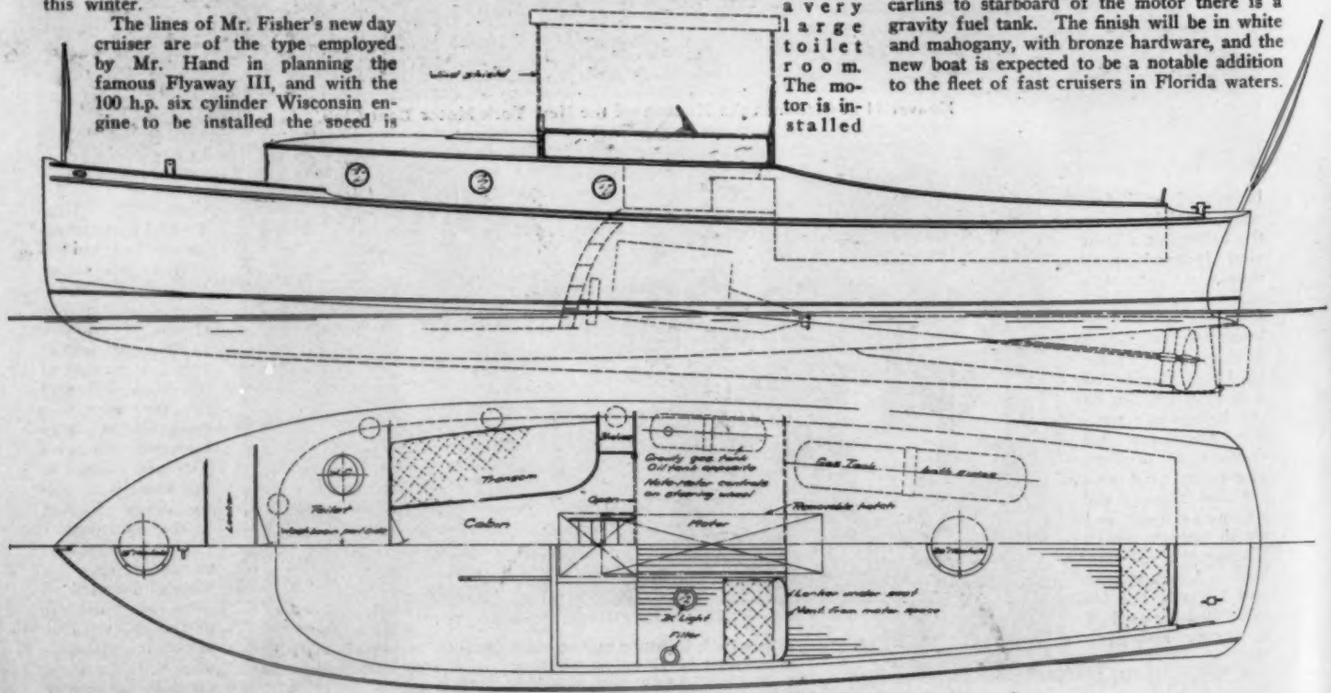
Carl Fisher's Express Cruiser

A Thirty-six Footer with Eight Feet Nine Inches Beam and Three Feet Draft—A New boat with 100 Horsepower Expected to Show Great Speed

THIS plan shows a new express day cruiser being built at Lawley's from plans by Wm. H. Hand, Jr., for Carl G. Fisher, of Indianapolis, for use in Florida this winter.

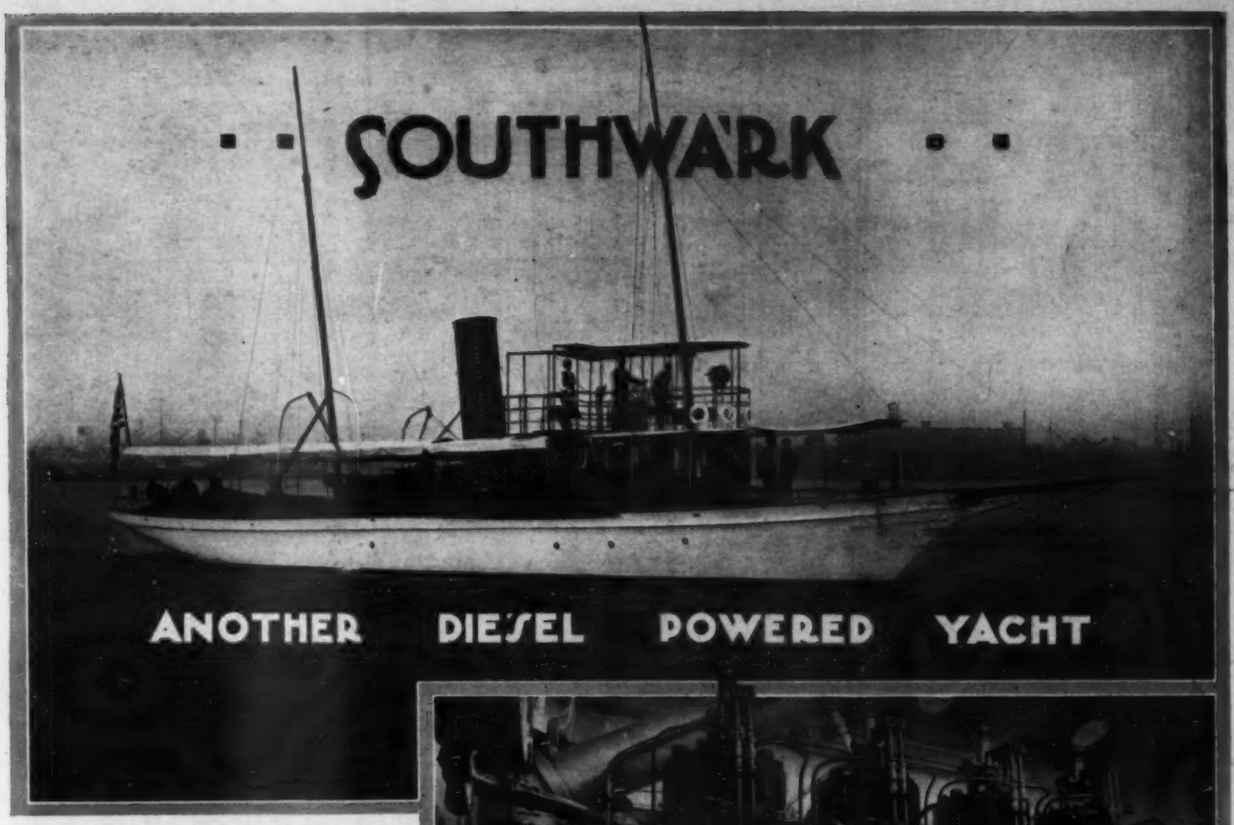
The lines of Mr. Fisher's new day cruiser are of the type employed by Mr. Hand in planning the famous Flyaway III, and with the 100 h.p. six cylinder Wisconsin engine to be installed the speed is expected to be at least 23 miles under service conditions.

The new boat has a comparatively small cabin, arranged for two transom berths and a very large toilet room. The motor is installed under a bridge deck, in the center of which there is a removable hatch. Under the cockpit on each side there is a large cylindrical gasoline tank, and suspended from the deck carlins to starboard of the motor there is a gravity fuel tank. The finish will be in white and mahogany, with bronze hardware, and the new boat is expected to be a notable addition to the fleet of fast cruisers in Florida waters.



Outboard profile and interior arrangement plan of Carl Fisher's new express cruiser

Photograph by Pearce



ANOTHER DIESEL POWERED YACHT

AN example of the use to which many of the large steam yachts will probably be put in the near future is found in the change which has recently been made in the well-known yacht Rambler, formerly owned by W. D. Ellis—a change which will result in the reduction of the operating and maintenance charges in these types of steam craft by something like 75 or 80 per cent.

The name of this yacht has been changed to Southwark, and her present owner, C. P. Vauclain, has replaced the former steam plant by one of the new Southwark-Harris valveless engines, which operates on the 2-cycle Diesel principle. This motor develops 150 h.p. on the brake and gives this 98 x 16-foot yacht a cruising speed of 12 miles an hour at a cost of only about 18 cents per hour.

The 150 h.p. Southwark-Harris Diesel motor—four cylinders, 9 x 13 inches, 2-cycle principle

The bridge

The motor has 4 cylinders, 9 x 13 inches, and develops its power at 300 r.p.m. Its weight is about 24,000 pounds, and two-step pistons are used.

The cylinders are carried on a cast iron frame supported by steel columns. An ingenious device is provided, so that by unscrewing several nuts the columns on one side can be easily removed and the crankshaft taken out. Another feature of this motor is that any bearing can be removed without first taking out the crankshaft.

The control is simple and so arranged that a single hand wheel controls both the fuel and air supply, and also automatically changes the lower pistons into air motors for starting and reversing purposes.

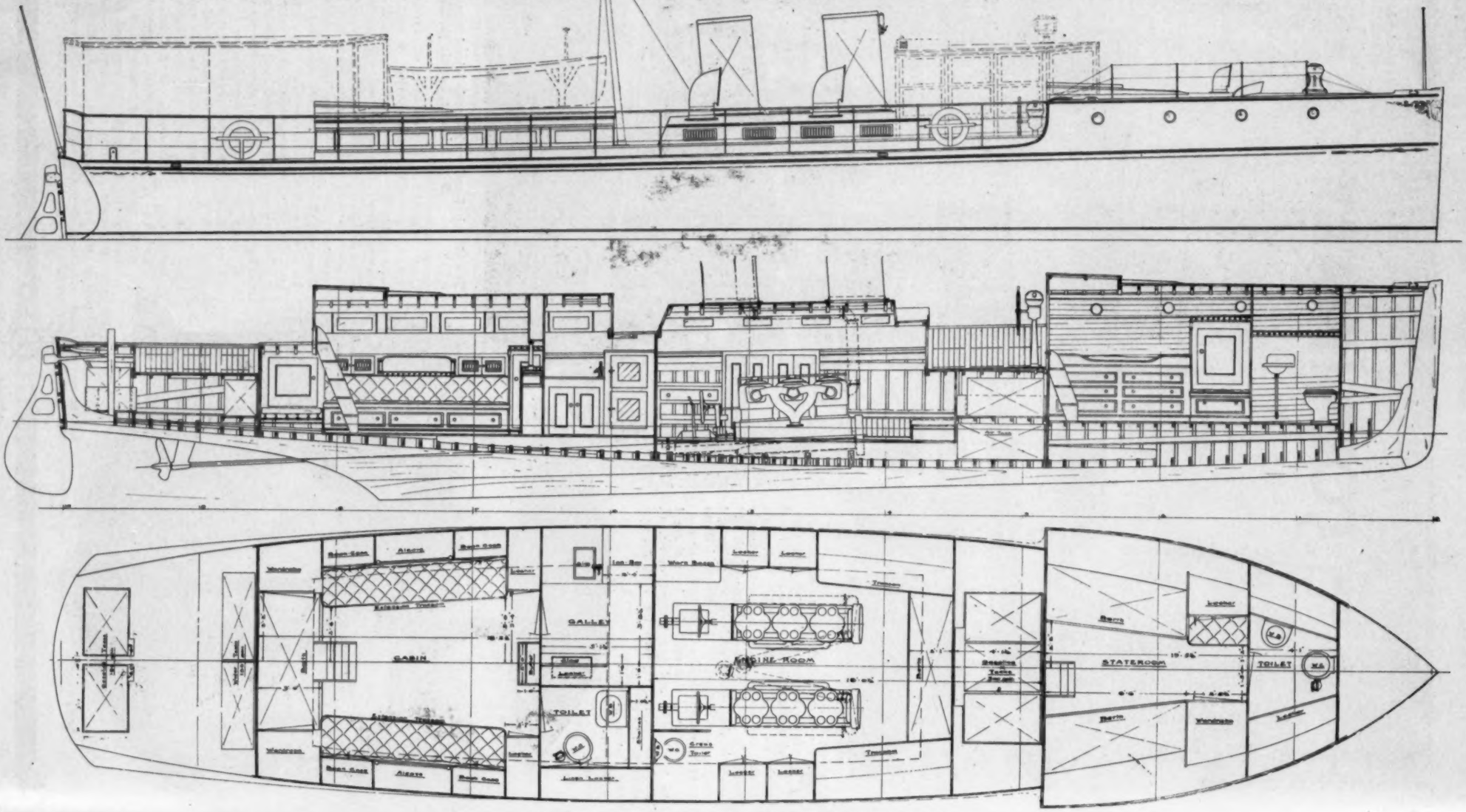
Fuel is supplied by means of four plunger pumps at the forward end of the engine. The pumps have no suction valves, but the oil is fed under pressure from the tanks. A fuel consumption of .6 pound per brake horsepower per hour is claimed. The lubrication is had by means of a number of pumps operated by a disc-crank drive from the after end of the camshaft, with sight feeds at all connections. The cylinder heads can be removed without dismantling any fittings.

A Twenty-Two Miler with Extraordinary Beam

BOWES & MOWER, of Philadelphia, are responsible for the design of this 64-foot express cruiser, which will be powered with two six-cylinder Harbeck Loew-Victor motors of 190 h.p. at 900 r.p.m. The boat is designed primarily for use on Long Island Sound, but doubt the boat will be sea-enough for use anywhere on

An extreme beam of 13 waterline beam of 11 feet, without worthy the Coast. feet, with a 7½ inches is considerably in excess of the average for boats of this description, but it has the advantage of allowing greater comfort both on deck and below.

In appearance this design has the ear marks of Enchantress II and Akbar, two of the most successful express cruisers of the past season, which were also designed by Bowes & Mower. No doubt the success of these boats influenced the New York yachtsman, who is to be the owner of this craft, in choosing such a design.



A 64-foot express cruiser with 380 h.p. designed by Bowes and Mower

A One-Man Seventy-Five Foot Twin-Screw Cruiser

A Very Interesting Type of Motor Yacht Similar in Arrangement to Eight Boats Already Built on Lake Erie

THE Matthews Boat Co., of Port Clinton, Ohio, in all its designs has aimed to develop a one-man boat, and in its latest design of a 75-footer has embodied this characteristic feature in a boat of a size which a few years ago was considered beyond the possibilities of one-man control. Eight of this interesting type of cruiser have been built by the Matthews Boat Co., and this fact alone emphasizes their popularity.

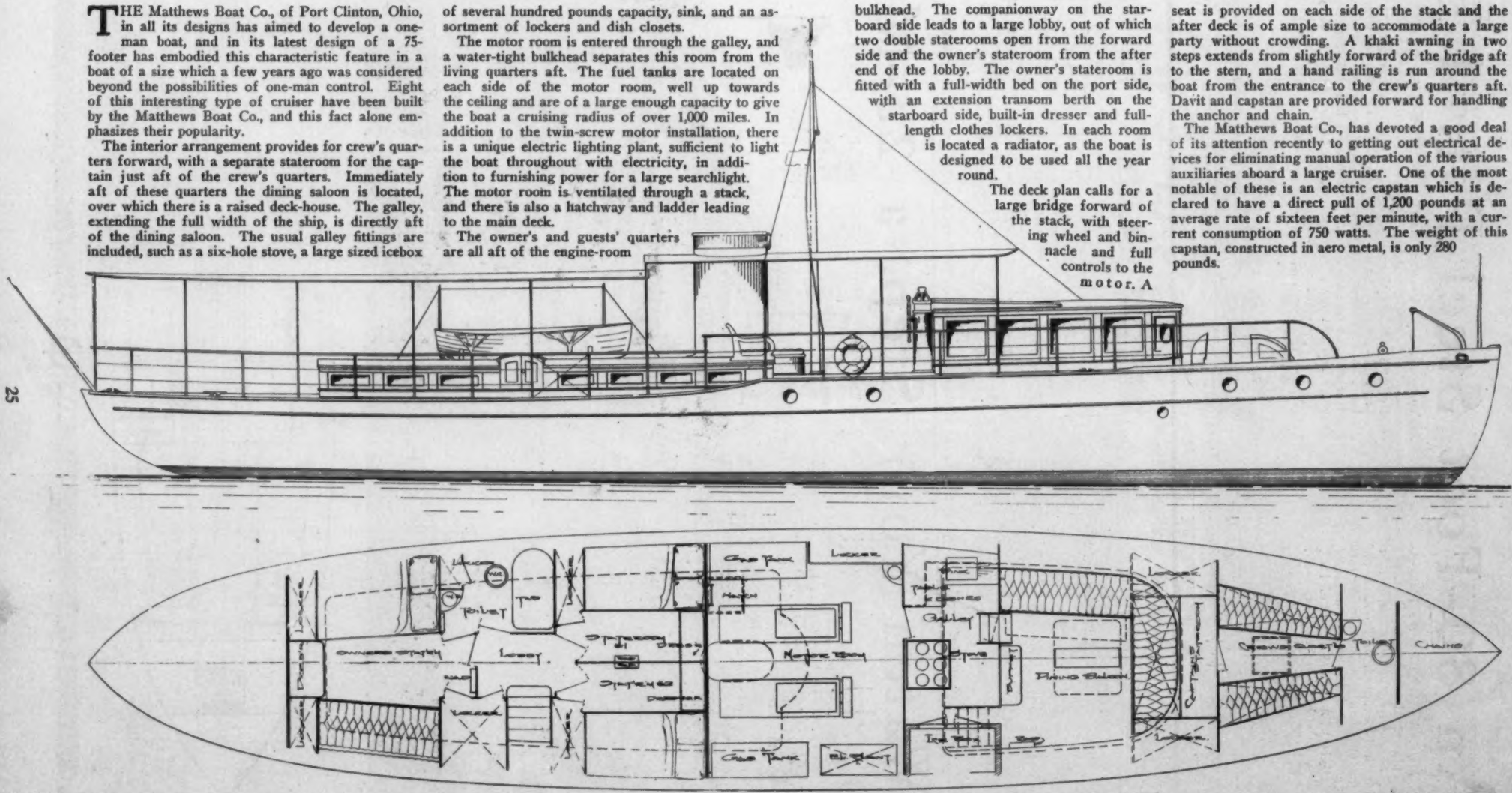
The interior arrangement provides for crew's quarters forward, with a separate stateroom for the captain just aft of the crew's quarters. Immediately aft of these quarters the dining saloon is located, over which there is a raised deck-house. The galley, extending the full width of the ship, is directly aft of the dining saloon. The usual galley fittings are included, such as a six-hole stove, a large sized icebox of several hundred pounds capacity, sink, and an assortment of lockers and dish closets.

The motor room is entered through the galley, and a water-tight bulkhead separates this room from the living quarters aft. The fuel tanks are located on each side of the motor room, well up towards the ceiling and are of a large enough capacity to give the boat a cruising radius of over 1,000 miles. In addition to the twin-screw motor installation, there is a unique electric lighting plant, sufficient to light the boat throughout with electricity, in addition to furnishing power for a large searchlight. The motor room is ventilated through a stack, and there is also a hatchway and ladder leading to the main deck.

The owner's and guests' quarters are all aft of the engine-room bulkhead. The companionway on the starboard side leads to a large lobby, out of which two double staterooms open from the forward side and the owner's stateroom from the after end of the lobby. The owner's stateroom is fitted with a full-width bed on the port side, with an extension transom berth on the starboard side, built-in dresser and full-length clothes lockers. In each room is located a radiator, as the boat is designed to be used all the year round.

The deck plan calls for a large bridge forward of the stack, with steering wheel and binnacle and full controls to the motor. A seat is provided on each side of the stack and the after deck is of ample size to accommodate a large party without crowding. A khaki awning in two steps extends from slightly forward of the bridge aft to the stern, and a hand railing is run around the boat from the entrance to the crew's quarters aft. Davit and capstan are provided forward for handling the anchor and chain.

The Matthews Boat Co., has devoted a good deal of its attention recently to getting out electrical devices for eliminating manual operation of the various auxiliaries aboard a large cruiser. One of the most notable of these is an electric capstan which is declared to have a direct pull of 1,200 pounds at an average rate of sixteen feet per minute, with a current consumption of 750 watts. The weight of this capstan, constructed in aero metal, is only 280 pounds.

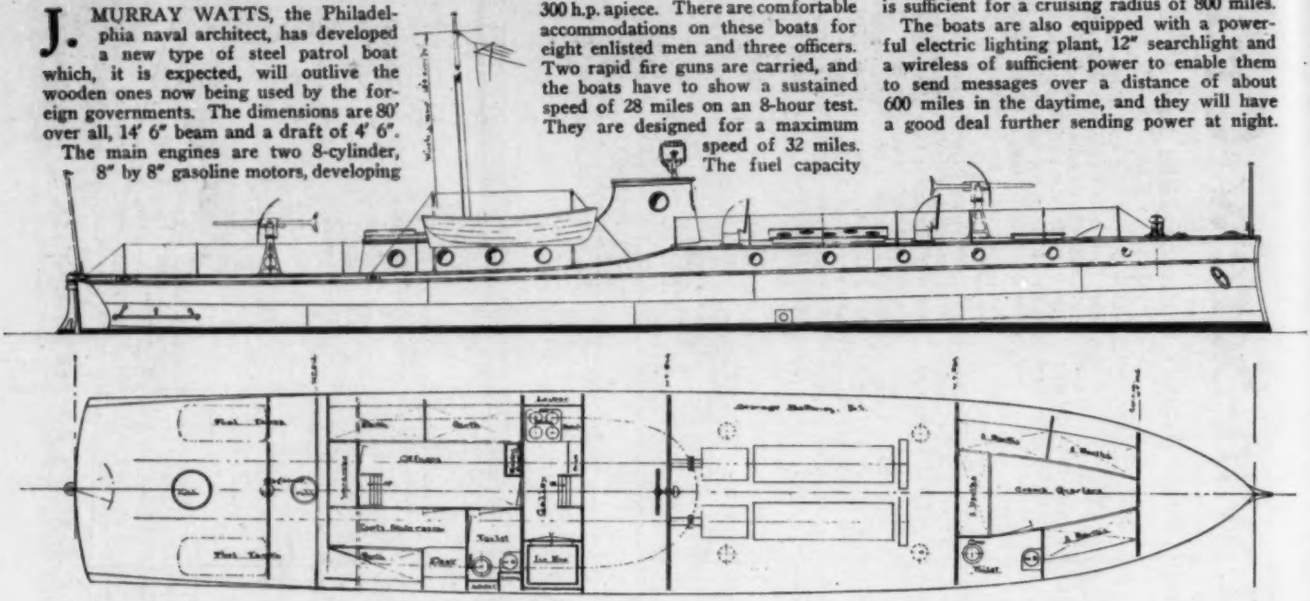


Interior arrangement plan and outboard profile of Matthews 75-footer which is designed for one-man control

An 80-Foot Steel Patrol Boat

J. MURRAY WATTS, the Philadelphia naval architect, has developed a new type of steel patrol boat which, it is expected, will outlive the wooden ones now being used by the foreign governments. The dimensions are 80' over all, 14' 6" beam and a draft of 4' 6". The main engines are two 8-cylinder, 8" by 8" gasoline motors, developing 300 h.p. apiece. There are comfortable accommodations on these boats for eight enlisted men and three officers. Two rapid fire guns are carried, and the boats have to show a sustained speed of 28 miles on an 8-hour test. They are designed for a maximum speed of 32 miles. The fuel capacity is sufficient for a cruising radius of 800 miles.

The boats are also equipped with a powerful electric lighting plant, 12" searchlight and a wireless of sufficient power to enable them to send messages over a distance of about 600 miles in the daytime, and they will have a good deal further sending power at night.

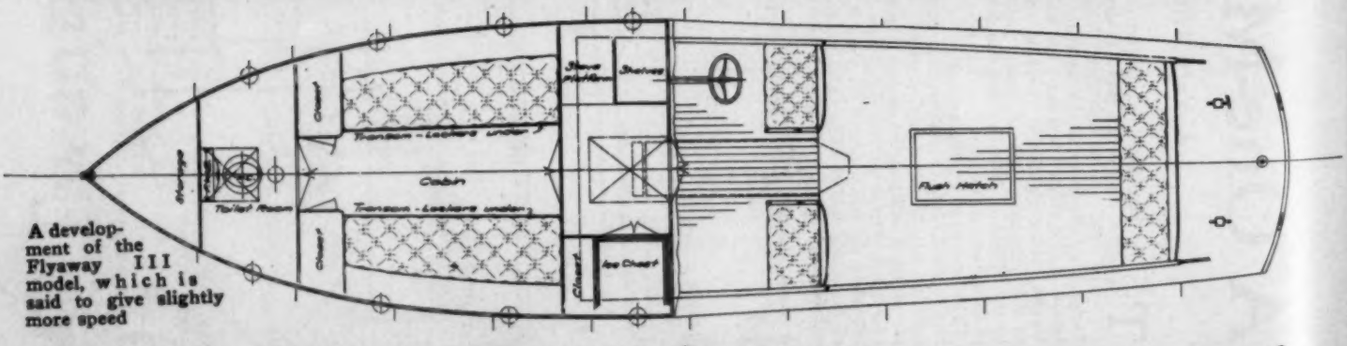


Outboard profile and arrangement plan of the 80-foot steel patrol boat designed by J. Murray Watts

Watch Your Step, a 23-Miler

ONE of the new motor boats enrolled in the fleet of the New York Yact Club is Watch Your Step, owned by Earl P. Charlton, and designed by William H. Hand, Jr., of New Bedford, Mass. This boat is very similar in design to Flyaway III, with the exception that she has less freeboard than the latter, which makes her much more graceful in appearance, and probably a somewhat better sea boat. She is powered with a 6-cylinder, 120 h.p. Van Blerck motor, which gives her a maintained speed of 23 miles an hour.

Her interior layout is very similar to that of Flyaway, with a good-sized cabin forward, containing two transom berths with locker space under them, in addition to two large clothes lockers forward. The engine is located under a raised bridge in the cockpit with the flywheel and the forward cylinder extending into the cabin.



A development of the Flyaway III model, which is said to give slightly more speed

Tarpon II

TWO EXPRESS CRUISERS OF SIMILAR DESIGN

THE speed bug bit two prominent Hudson River yachtsmen this spring, who, although of many years' experience in motor boating, had been in the past content to jog along at the ordinary cruiser speed of 10 miles per hour or thereabouts. Nothing short of double this speed would satisfy them for 1915, and they therefore commissioned L. Kromholz of New York City to get out plans of boats for them which would do the trick, and those which Mr. Kromholz produced for his clients were certainly worthy of the highest praise.

The owners could not agree on whether the boats should be of the trunk cabin or raised deck type, so one of them, Buto, was built with the former type II of upper works, while on the other, Tarpon (shown in the upper illustration), the raised-deck construction was employed.

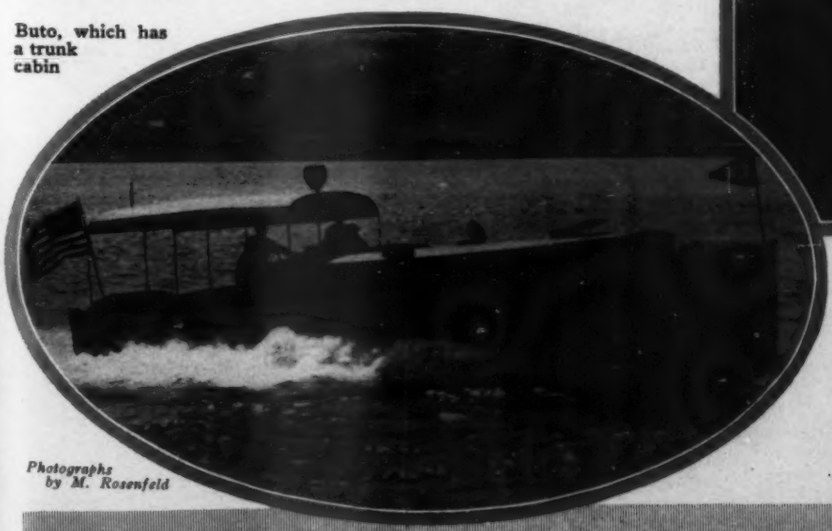
The specifications called for an over-all length of 39 feet 11 inches, a load waterline length of 39 feet 3½ inches, an extreme beam of 9 feet 4 inches and a waterline beam of 8 feet 4 inches. Buto was powered with a six-cylinder, 5.2 x 7-inch Wisconsin motor and Tarpon II with the same make of engine, the cylinders having, however, a bore of 5¾ inches instead of 5.2 inches. Both motors were what might be called high speed, that is, they develop their power and are to be run at speeds in excess of 1,000 revolutions per minute.

In actual practice both boats and outfits were highly successful. They demonstrated that the coming type of cruiser will be designed and built along these lines. Dryness and ableness in a seaway and an ability to "get there" are vital points which are bound to interest. To a majority who saw these boats the raised-deck Tarpon II appeared the more pleasing to the eye, both when under way and when at anchor, and the additional room provided below decks is also an important factor.

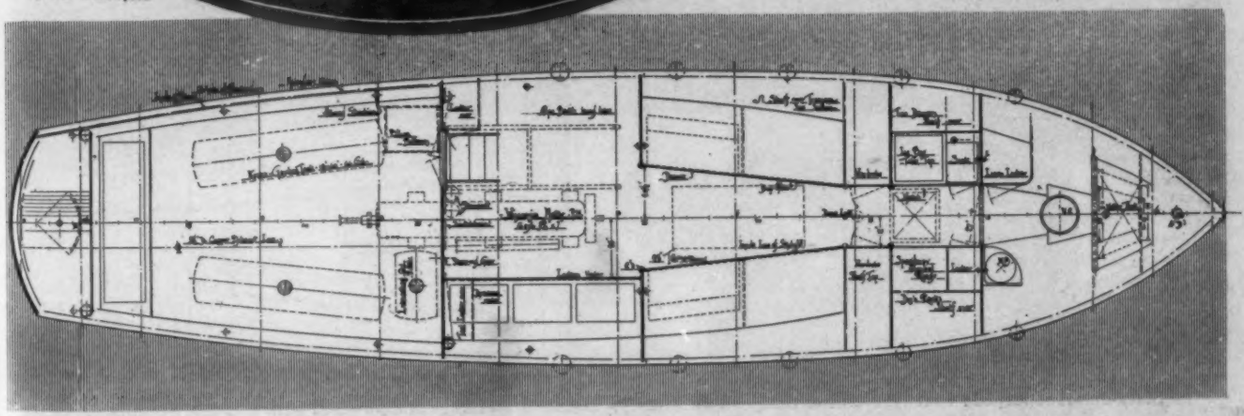
Both boats displace nearly 1,400 pounds, and while their owners would never permit their craft to get together for a burst of speed, yet an honest speed of 20 miles an hour is claimed for each boat.

The six-cylinder Wisconsin in Tarpon II

Buto, which has a trunk cabin



Photographs by M. Rosenfeld



Interior arrangement plan of the two 40-foot express cruisers designed by L. Kromholz

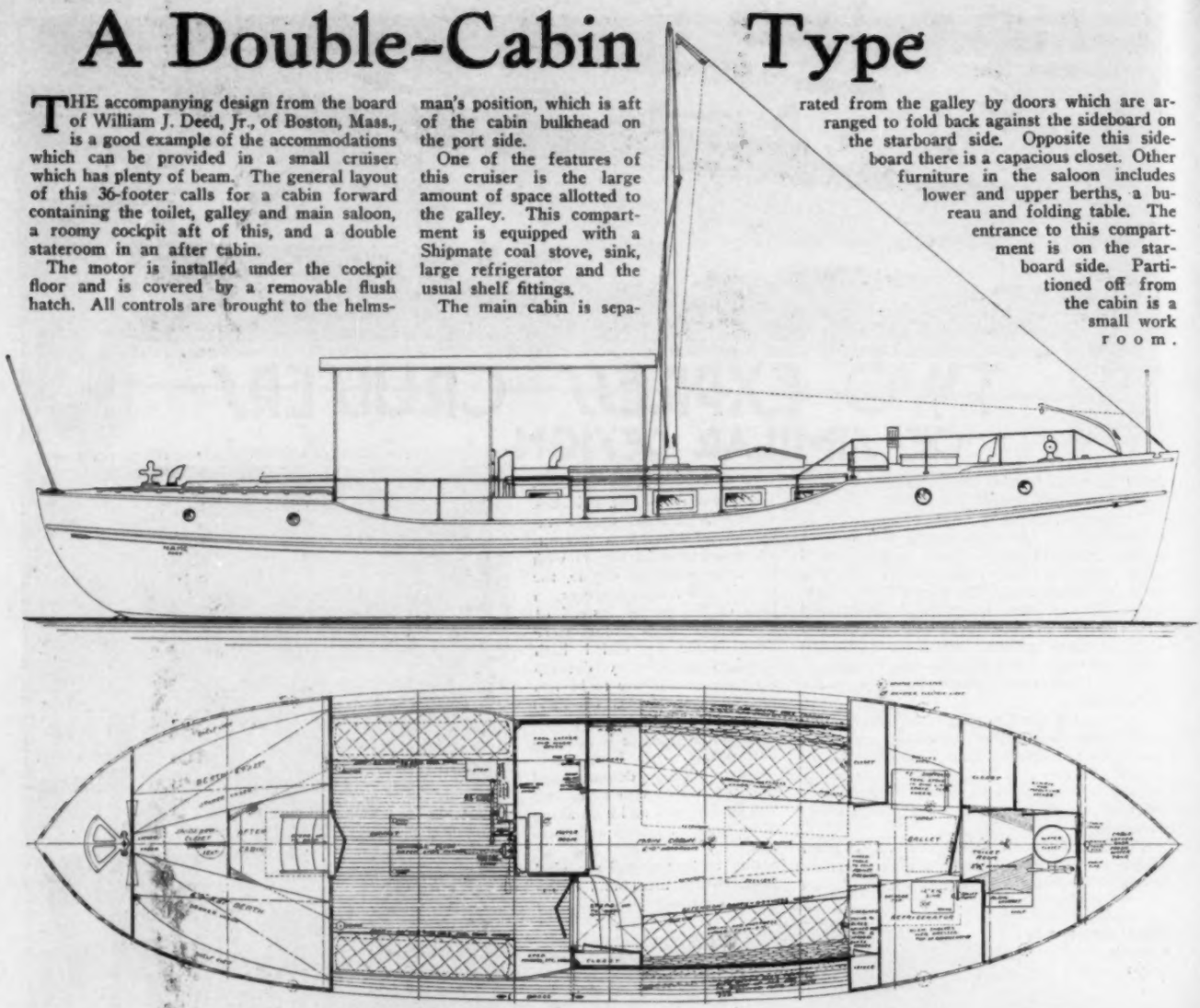
A Double-Cabin Type

THE accompanying design from the board of William J. Deed, Jr., of Boston, Mass., is a good example of the accommodations which can be provided in a small cruiser which has plenty of beam. The general layout of this 36-footer calls for a cabin forward containing the toilet, galley and main saloon, a roomy cockpit aft of this, and a double stateroom in an after cabin.

The motor is installed under the cockpit floor and is covered by a removable flush hatch. All controls are brought to the helmsman's position, which is aft of the cabin bulkhead on the port side.

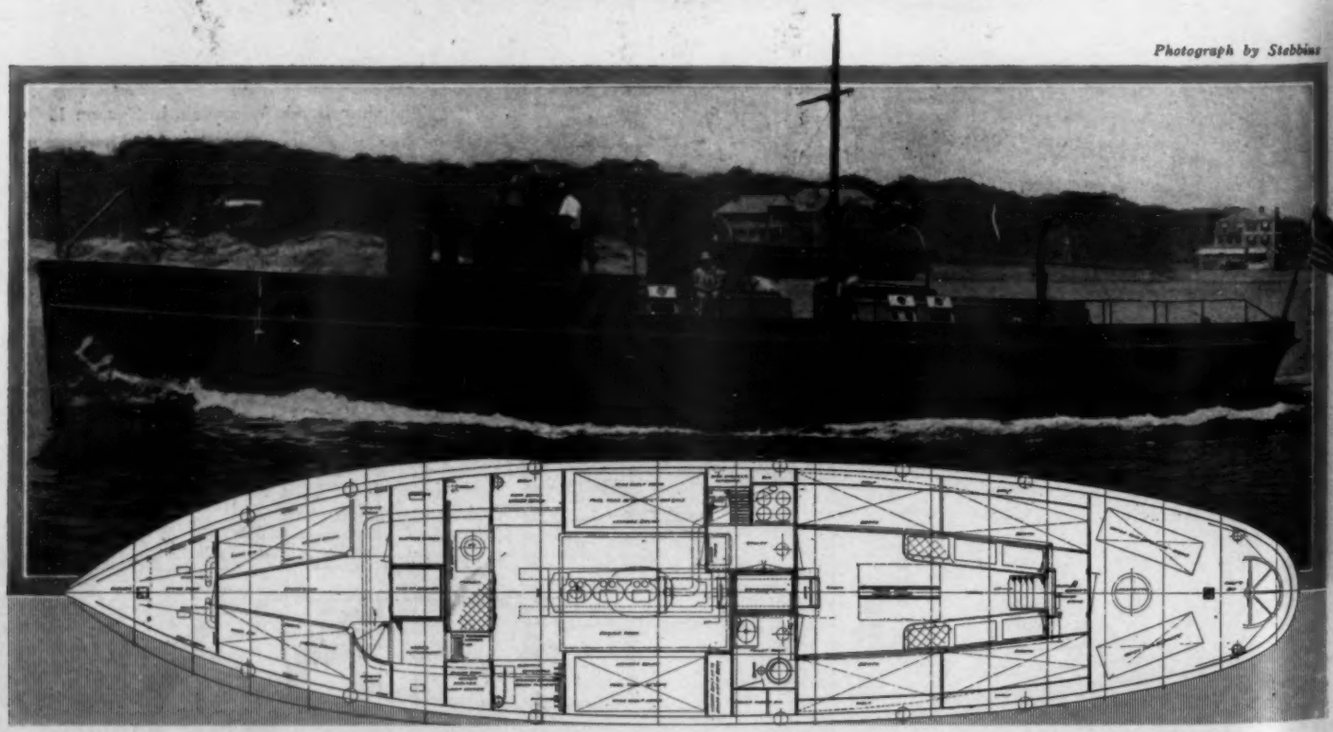
One of the features of this cruiser is the large amount of space allotted to the galley. This compartment is equipped with a Shipmate coal stove, sink, large refrigerator and the usual shelf fittings.

The main cabin is separated from the galley by doors which are arranged to fold back against the sideboard on the starboard side. Opposite this sideboard there is a capacious closet. Other furniture in the saloon includes lower and upper berths, a bureau and folding table. The entrance to this compartment is on the starboard side. Partitioned off from the cabin is a small work room.



Cruiser designed by William J. Deed, Jr., having a length of 36 feet and a beam of 10 feet.

Photograph by Stebbins



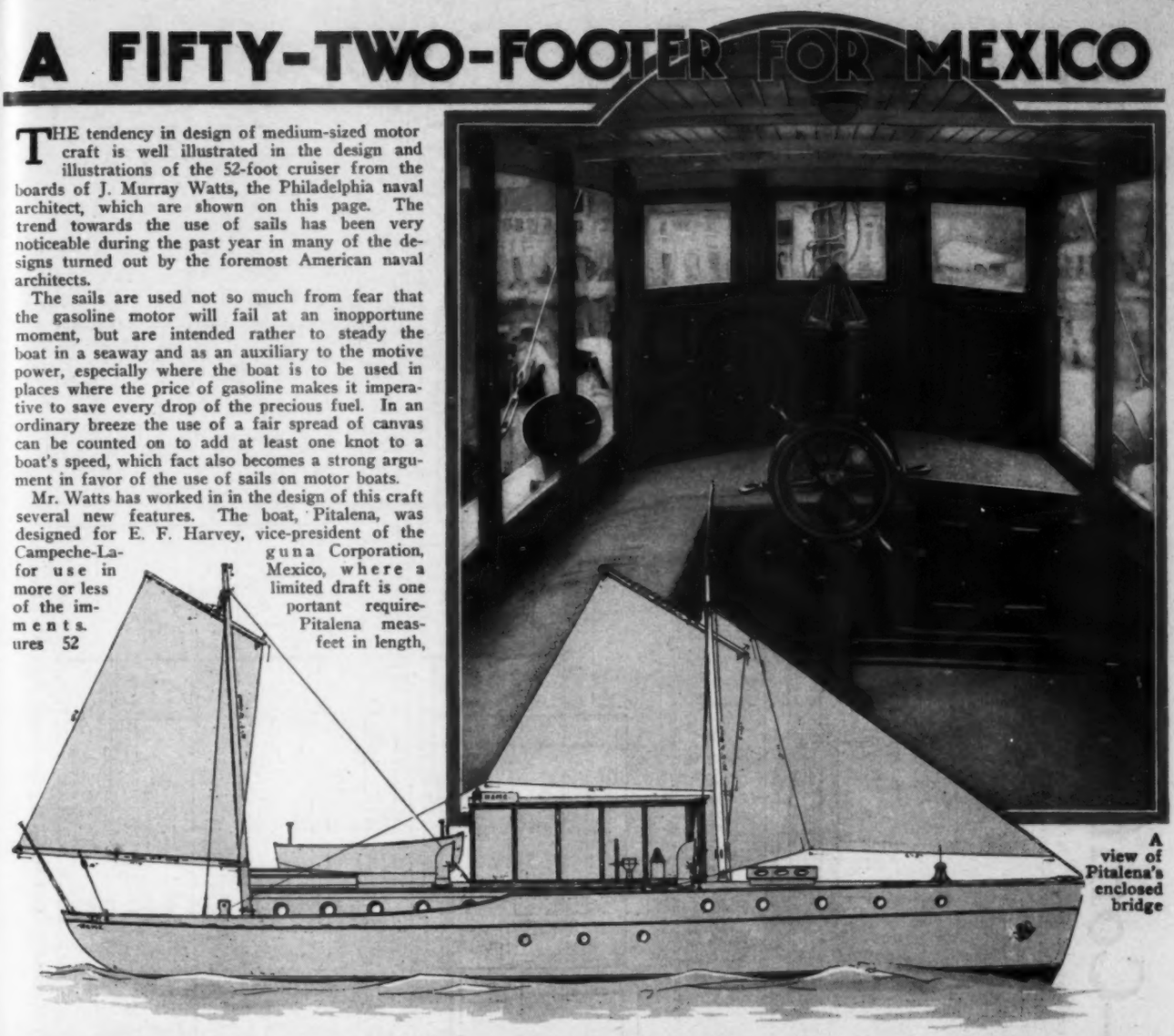
Sixty-one-foot torpedo boat type cruiser designed by Swasey, Raymond and Page and powered with a 75 h.p. Sterling motor.

A FIFTY-TWO-FOOTER FOR MEXICO

THE tendency in design of medium-sized motor craft is well illustrated in the design and illustrations of the 52-foot cruiser from the boards of J. Murray Watts, the Philadelphia naval architect, which are shown on this page. The trend towards the use of sails has been very noticeable during the past year in many of the designs turned out by the foremost American naval architects.

The sails are used not so much from fear that the gasoline motor will fail at an inopportune moment, but are intended rather to steady the boat in a seaway and as an auxiliary to the motive power, especially where the boat is to be used in places where the price of gasoline makes it imperative to save every drop of the precious fuel. In an ordinary breeze the use of a fair spread of canvas can be counted on to add at least one knot to a boat's speed, which fact also becomes a strong argument in favor of the use of sails on motor boats.

Mr. Watts has worked in in the design of this craft several new features. The boat, Pitalena, was designed for E. F. Harvey, vice-president of the Campeche-Laguna Corporation, Mexico, where a limited draft is one for use in portant requirements. Pitalena measures 52 feet in length, with an overall beam of just under 10 feet. She is built in the heaviest and most substantial manner throughout, and her entire interior and exterior finish is in solid mahogany.



A view of Pitalena's enclosed bridge

The main saloon is roomy and is well furnished

The arrangement plan provides for a good-sized stateroom and toilet room forward, an engine-room amidships, and a large galley aft. Besides this, there is a deck house amidships 12 feet long.

Her power plant consists of a six-cylinder, 50-75 h.p. Frisbie motor, having a bore of 6 inches and a stroke of 6 inches, developing its power at from 550 to 800 r.p.m., and capable of being slowed down to 150 r.p.m. The motor, with its reverse gear, has a total weight of 1,600 pounds. The particular feature of this Frisbie motor is the size of its bearings, which have been designed extra large to meet the requirements of the heavy-duty service to which it is subjected. The main bearings measure 2⅛ x 5 inches, the center bearings 2⅛ x 4 inches, and the crank-pin bearings 2⅛ x 3 inches each. The motor is of the typical Frisbie valve-in-head design, which is claimed to give more power for the amount of gasoline consumed than any other type of construction. The lubrication of this motor is unique.

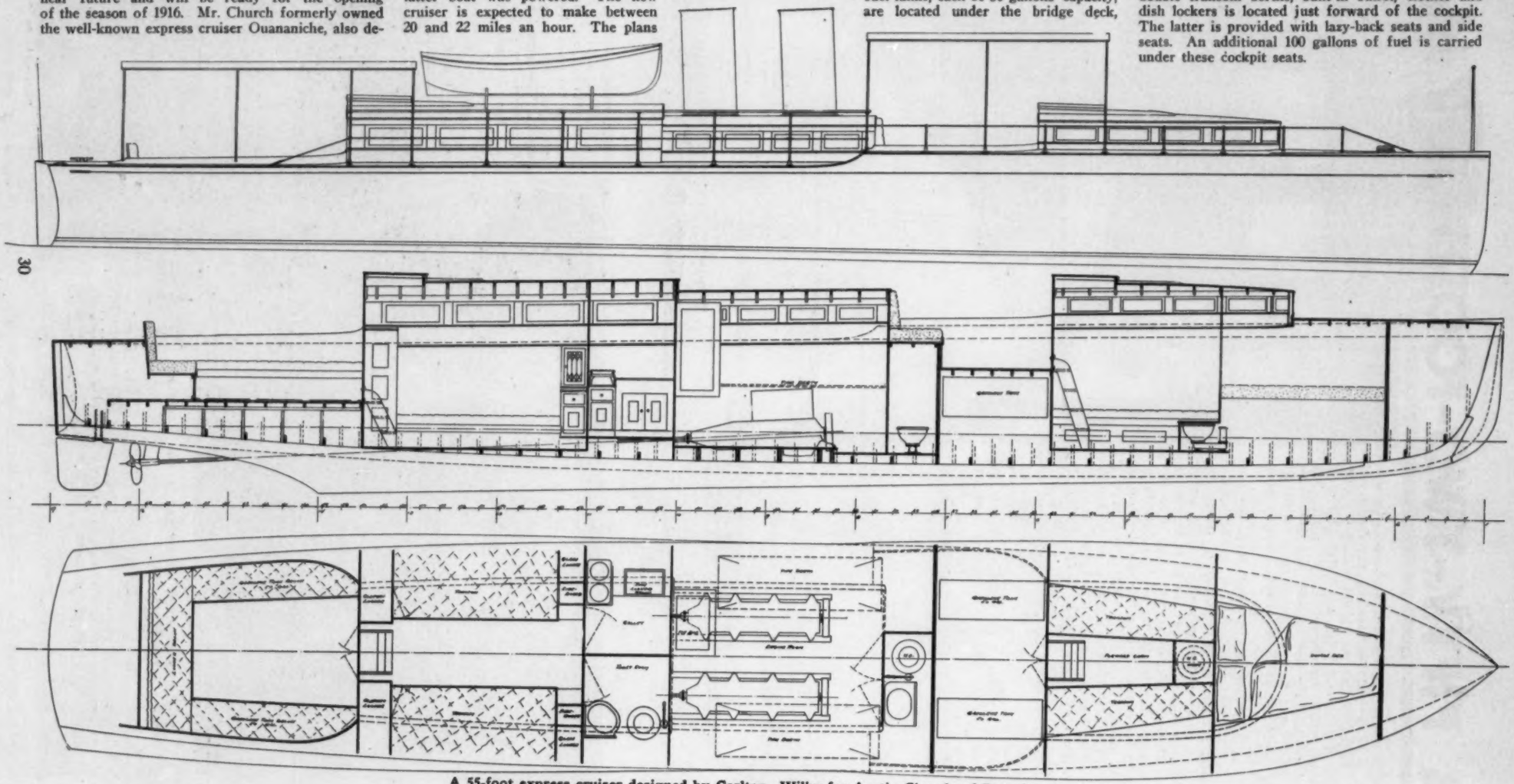
The 50-75 h.p. 6-cylinder Frisbie motor

Photographs by Pearce

A Fifty-Five Footer—Comfortable, Strong and Fast

THAT express motor cruisers are becoming popular on the Great Lakes is demonstrated by the design which Carlton Wilby, of Detroit, Mich., has just turned out for Austin Church of the same city, which is to be built in the very near future and will be ready for the opening of the season of 1916. Mr. Church formerly owned the well-known express cruiser Ouananiche, also designed by Mr. Wilby. The new craft will be 55 feet in length by 9 feet beam, and very similar in appearance and construction to Ouananiche, but will have two 1916 four-cylinder Van Blerck motors instead of two sixes of the same make, with which the latter boat was powered. The new cruiser is expected to make between 20 and 22 miles an hour. The plans for Mr. Church's new boat show exceptionally good accommodations for a party of eight or more, in addition to a crew of two.

There is a large forward cabin, with accommodations for four persons forward of the bridge. Two fuel tanks, each of 50 gallons' capacity, are located under the bridge deck, which is well forward of amidships. The motor room containing the two four-cylinder Van Blerck motors is located amidships and is separated from the rest of the boat, both forward and aft, by watertight bulkheads. A large main cabin with two double transom berths, built-in buffet, clothes and dish lockers is located just forward of the cockpit. The latter is provided with lazy-back seats and side seats. An additional 100 gallons of fuel is carried under these cockpit seats.



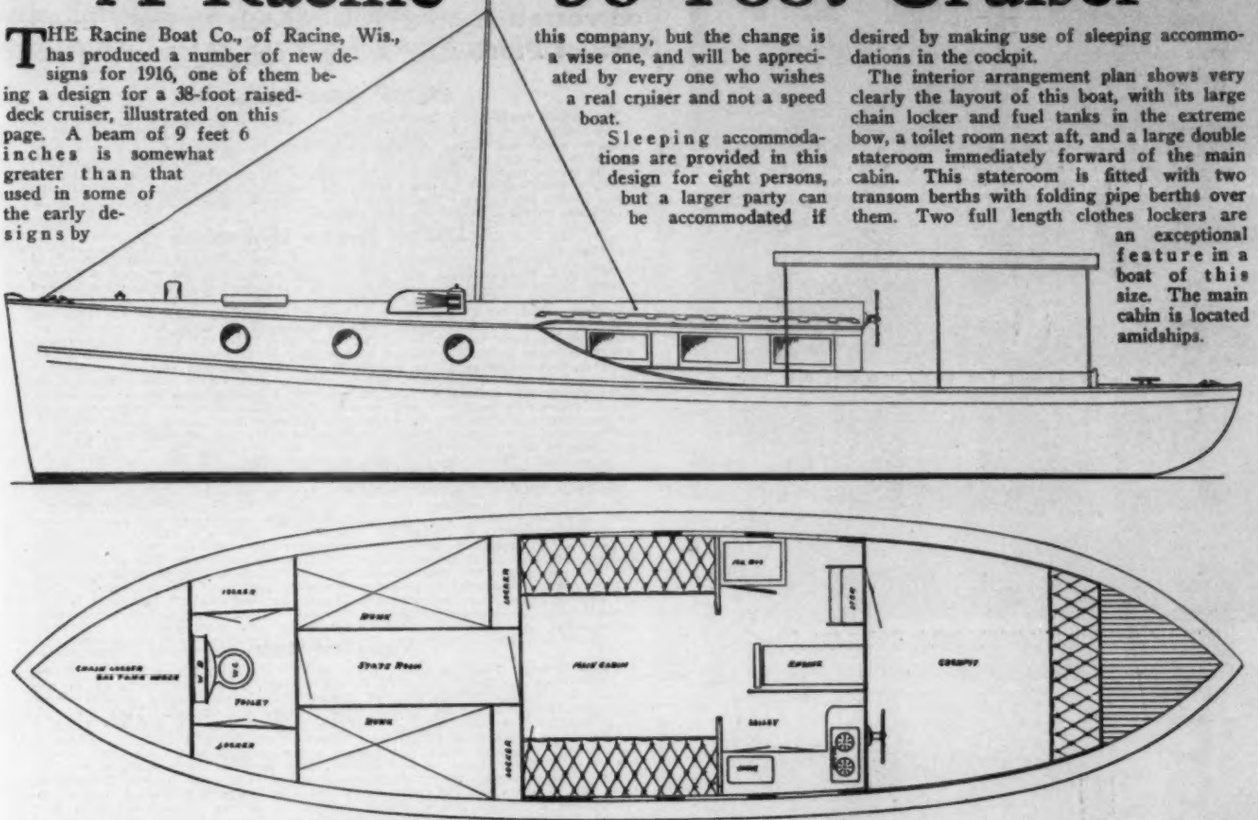
A 55-foot express cruiser designed by Carlton Wilby for Austin Church, of Detroit

A Racine 38-Foot Cruiser

THE Racine Boat Co., of Racine, Wis., has produced a number of new designs for 1916, one of them being a design for a 38-foot raised-deck cruiser, illustrated on this page. A beam of 9 feet 6 inches is somewhat greater than that used in some of the early designs by this company, but the change is a wise one, and will be appreciated by every one who wishes a real cruiser and not a speed boat.

Sleeping accommodations are provided in this design for eight persons, but a larger party can be accommodated if desired by making use of sleeping accommodations in the cockpit.

The interior arrangement plan shows very clearly the layout of this boat, with its large chain locker and fuel tanks in the extreme bow, a toilet room next aft, and a large double stateroom immediately forward of the main cabin. This stateroom is fitted with two transom berths with folding pipe berths over them. Two full length clothes lockers are an exceptional feature in a boat of this size. The main cabin is located amidships.

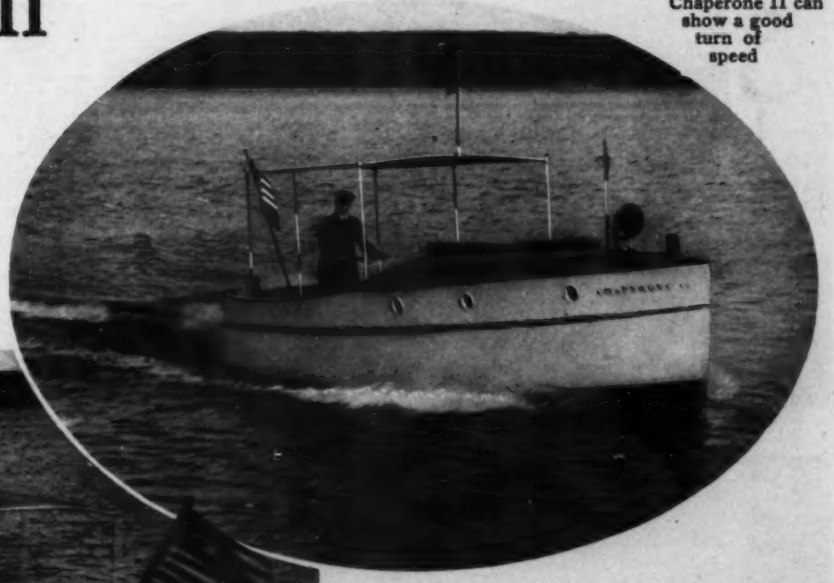


Plans of the 38-foot raised-deck cruiser designed by the Racine Boat Co.

Chaperone II

DR. E. L. H. McGINNIS, a prominent member of the New York and Shelter Island yacht clubs, is as enthusiastic a motor boatman as we ever came across. His fleet of motor boats includes Sassy Tom Cat, a little 13-foot auxiliary cat, with a single-lunger Stamford motor; Salome, a 30-foot raised-deck cruiser, designed by Whitaker, and powered with a four-cylinder 3¼x5 Loew-Victor motor, and Chaperone II, the latest addition. The name which Dr. McGinnis has chosen for his new craft is not the only example of good taste shown by this owner (considering Sassy Tom Cat and Salome), but in choosing a V-bottom design by William H. Hand, Jr., he has shown that he is aware of the possibilities of this type of construction for small boats. Furthermore, equipping her with the same type of motor, a 3¼x5 Loew-Victor, as he used in Salome, shows that this type of power plant is admirably suited for this kind of service.

Chaperone II can show a good turn of speed



Two views of Chaperone II, a 26-foot Hand V-bottom cruiser powered with a Loew-Victor motor

Chaperone II measures 26 feet in over all length, has a waterline length of 24 feet 6 inches, an extreme beam of 8 feet and a draft of 2 feet 4 inches. Her interior arrangement shows a toilet room located well forward, an ample-sized main cabin with two transom berths, full-length clothes lockers, space for galley, etc., and the four-cylinder Loew-Victor motor located at the forward end of the cockpit under a large hatch, raised several inches above the floor.

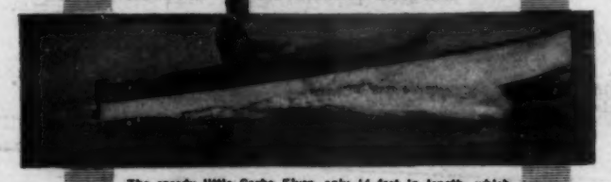
The 18-foot Dandy Junior tender which is built by the Water Craft Co. and is equipped with a 4 h.p. motor

A 17-foot stock model built by the Hydroplane Construction Co.

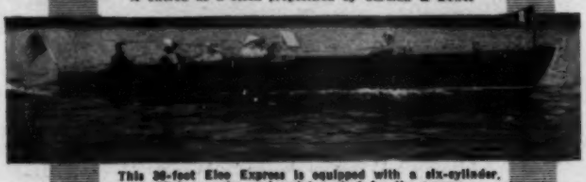
A comfortable little 19-footer built by the Rice Bros. Co., which attains a speed of 10 m.p.h. with a 10 h.p. motor

Viper 26-foot Sea Sled, powered with two six-cylinder motors which give a speed of over 35 m.p.h.

The W. H. Mullins Co.'s 25-foot Arrow, one of a line of pressed steel and standardized wooden boats



The speedy little Carbo Flyer, only 14 feet in length, which is offered as a stock proposition by Carman & Bowes



This 36-foot Elco Express is equipped with a six-cylinder, 75 h.p. motor and pedal control for the reverse

A 32-foot Niagara runabout which is equipped with new and approved devices to add to the comfort and convenience of the passengers

Boats of Stan-

Concentration on a Few Models by Each Builder Boats of Practically Every Type, With or Without

Dandy Junior Tenders

The Water Craft Co. of New York City has found it necessary to extend its line of moderate priced Dandy Junior tenders, this type having been found useful to private owners for fishing in open waters. The accompanying illustration is of an 18-foot boat, equipped with a 4 h.p. motor. This company's regular line of yacht tenders, with or without power, is declared to have continued in favor, and no changes in these boats are contemplated. This company's 16-foot Sport Junior, shallow-draft hunting and fishing boat, equipped with a 6 h.p. motor, is considered unique in design for such purposes.

A 17-Foot Stepless Hydroplane

The Hydroplane Construction Co., of Point Pleasant, Ky., offers, as the result of three years' experimenting with different types of hulls and motors, a 17-foot stepless hydroplane that is declared to combine the speed qualities so much desired with an ability to carry comparatively heavy motors of low and medium power. This boat, which has a beam of 4 feet, may be successfully fitted, we are informed, with any light or medium-duty motor, ranging from 5 to 100 h.p., not exceeding 600 pounds' weight. As shown in the illustration, the boat is arranged with one seat for two passengers aft and with a spray hood over the motor. It is stated, however, that the shape of the underbody is such as to throw the spray downward and out from the boat, making it dry even in very rough water. The seating arrangement as regularly supplied accommodates four persons aft of the motor, and if desired an additional seat may be placed forward of the engine flywheel, accommodating two more. This boat, complete in knock-down, is sold for $92; the complete hull, without fittings, is listed at $145, and the completely equipped hull may be obtained for $193.

Rice 19-Foot Runabout

The Rice Bros. Co. of East Boothbay, Me., is specializing for 1916 on three different types of runabout. One of these is a 20-foot special launch having a beam of 4 feet 4 inches, and a seating capacity for five persons with room for two or three extra chairs in the cockpit. Another of them is a 22-foot Auto Family launch which, equipped with a four-cylinder 16 h.p. Rice motor, installed under hatches forward, attains a speed of 12 miles per hour. The third boat in this line, shown in the accompanying illustration, is a 19-foot runabout which has easy lines forward, working into quite a deep dead-rise amidships, where the engine comes, then widening out into a flat underbody. This boat is constructed of the finest materials, and is equipped with an 8-10 h.p. Rice two-cylinder motor, which gives a speed of 10 miles per hour.

Viper Sea Sleds

These inverted V-bottom boats, which are built by the Viper Co., of Pictou, N. S., of which Albert Hickman is the president, and are marketed in this country by Murray & Tregurtha of Boston, Mass., have become popular where high-speed runabouts of exceptional seaworthiness are desired. They are built in a variety of models ranging in length from 20 feet up, and are designed for single and twin-screw propulsion. One of these boats, a 26-footer, shown in the accompanying illustration, has made a rather enviable record for itself, having run from Boston, Mass., to Bar Harbor, Me., through foggy easterly weather, at an average rate of nearly 28 miles an hour. The total length of this boat is 26 feet 5 inches and the breadth is 6 feet 8 inches, with a draft at rest of approximately 20 inches and at speed of about 15 inches. Two six-cylinder Van Blerck engines, having separate screws, are installed, and the guaranteed speed is 35 miles an hour. The seating capacity of this hydroplane is for nine persons, but it is declared that the boat will plane with twenty passengers or more. Among the present owners of Sea Sleds are J. Stuart Blackton, Vincent Astor, William J. Matheson, and other well-known yachtsmen.

Mullins Pressed Steel and Standardized Wooden Boats

The W. H. Mullins Co. of Salem, O., will offer for 1916 a larger and more varied line of stock boats than ever before, consisting of nine models in the pressed steel construction, and five in the standardized wooden construction. The steel boats range from 16 to 26 feet in length and include the 16-foot 25 h.p. stock hydroplane, which has established such a good record for itself in various racing events of the past season. The wooden models vary in length from 16 to 25 feet, and like the steel boats have a horsepower range from 3 to 35 in both two and four-cycle types. They include a tunnel stern or shallow-draft boat, 16 feet in length, of good design and speed, and with a maximum draft of only 6 inches.

Cape Cod Dories

For the season of 1916 the Cape Cod Power Dory Co., of Wareham, Mass., will offer as stock models: Its 20-foot Special dory launch which has been on the market for six years; a 16-foot shallow-draft fishing boat which has been sold for several years; a 14-foot flat bottom boat with heavy stern built especially for outboard motors; 10 and 12-foot rowing skiffs finished in paint or varnish, and cabin cruisers 24 to 35 feet in length. A new model launch, 17 feet long, built especially for lake use, with the motor installed nearly amidships and entirely enclosed, is also being offered. This boat is fitted with cushions and folding seat-backs, and is finished with varnished decks and interior, making a very neat appearance. It is stated that these boats will be produced in large quantities during the coming year.

The Carbo Flyer

Carman & Bowes of Philadelphia, Pa., have put on the market a neat little hydroplane which is only 14 feet in length, but which, powered with a 10 h.p. Universal motor, is declared to make a speed of 15 miles an hour. This little speedster, which is offered as a stock proposition, was designed by Bowes & Mower, and is being built for the producing company by the Mathis Yacht Building Co. Carbo Flyer, as she is called, is constructed of the best materials throughout, the framing being of oak, and the planking of cedar with cypress deck and mahogany trim. The equipment is very complete, including in addition to the Universal motor, a copper gasoline tank, Stewart-Warner vacuum feed system and bronze shaft, propeller, stuffing box and strut.

Elco Cruisers and Express Runabouts

The Elco Co. of Bayonne, N. J., has a line of standardized express runabouts and cruisers which have met with notable success. This company's 45-foot cruiser, which has been built for a number of years, is well and favorably known along the entire Atlantic coast, and its 36-foot express runabout has been popular for a several years. The most recent model offered by this concern is the 32-foot Cruisette, a double-cabin cruiser, with the engine installed in the after cabin. This design was evolved in order to create a small cruiser which for appearance, construction, cruisability and reliability needed no apology. The forward cabin, which sleeps four persons, is distinctly unusual in design, the upper berths being set forward of the fixed transoms to give sleepers in the lower berths an abundance of air, even on the hottest nights. The toilet and galley, coming aft of the berths, are both ample in size. Sleeping accommodations for two persons are provided in the after cabin, and the central cockpit is of sufficient size to sleep three persons, should the size of the party make it necessary. Many other features mark this cruiser, which is put together in the best possible way, and which, with a 24 h.p. Elco-Lamb motor, attains a speed of 9½ miles per hour.

Niagara Runabouts

The Niagara Motor Boat Co. of North Tonawanda, N. Y., has a line of high-class runabouts which are of substantial, reliable construction without unnecessary weight, and which are equipped with every new and approved device which will add to the convenience and surety of operation, or to the comfort of the passengers. These runabouts are built in several sizes, but the one shown in the accompanying illustration is a 32-footer with a beam of 6 feet. This boat, which was exhibited at the New York show last February, is equipped with a 30-45 h.p. four-cylinder four-cycle Fay & Bowen motor with electric starter and pedal reverse control. The decks and interior are finished in mahogany and the seats are of the bucket type, with deep box springs and genuine Spanish leather upholstery. The boat is provided with a new type of auto top, which is fastened to the brass rail beside the coaming, upon which rail it easily slides when the owner wishes to fold it down on the after deck. In addition to being of good speed this model is said to be very dry and safe even in a heavy sea.

dardized Design

Spells Satisfaction to the Purchaser—Complete Power, or in K-D or Pattern Form Offered for 1916

Toppan Dories and Cruisers

The Toppan Boat Manufacturing Co. of Boston, Mass., is making this year three types of boats which, though differing from each other in design and construction, are alike in respect to exceptional seaworthiness, safety and carrying capacity. One of these models, which is shown on the second page following, is the Toppan dory, made in 18, 20, 22, 26 and 30-foot sizes, and sold at prices ranging from $300 to $975. This boat is described as a finely finished fishing dory, a little flat on the bottom, but with good high freeboard, and with solid construction throughout. Another of the Toppan models is the Government Model launch, which is being built for 1916 in 22 and 25-foot lengths, and the third is the Toppan V-bottom runabout, 21 feet in length, which, having a 20 h.p. Kermath motor installed, makes about 21 miles per hour. This V-bottom craft is also made in 24, 27 and 30-foot lengths, and all sizes are built with the best possible material, with batten construction, screw-fastened forward deck and engine space forward of the bulkhead. The Toppan Company is also getting out some attractive raised-deck cruisers, of which one is shown in the accompanying illustration.

Fay & Bowen Runabouts

The Fay & Bowen Engine Co. of Geneva, N. Y., has a line of stock boats which includes a 26-foot 18-mile runabout, a Family Special open boat, with a length of 25 feet and a speed of 14 miles; a Junior runabout, 24 feet in length and capable of 16 miles an hour, and the 32-foot Family Special runabout shown in the accompanying illustration. This 32-footer was designed to meet the demand for a large, roomy family boat with the engine under the deck forward, and with exceptional freeboard for safety in rough weather. The planking is of white cedar and the top work and interior are of mahogany. A four-cylinder, four-cycle 30 h.p. Fay & Bowen motor is installed with full automobile control, and the speed attained by this outfit is 17 miles an hour. This boat, as well as the others mentioned above, may be supplied with complete electric starting and lighting equipment.

The Speedway Speedabout

As a part of a line of high-class yacht tenders and express runabouts the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., of Morris Heights, N. Y., are offering the 25-foot Speedabout for use on lake, river or open water. Only the finest materials enter into the construction of this runabout, and the frames are of oak or elm, the keel of oak, the stem and stern posts of hackmatack, and the planking of cedar or cypress. The decks, coaming and interior joiner work are of mahogany. The inside of the hull is given two coats of paint and the topsides three coats of white paint, while the bottom is painted in two coats with green copper composition. The motor installed is a 22-28 h.p. four-cylinder Speedway engine, with a 4x4¼-inch bore and stroke. Bosch high-tension ignition is used, and a planetary reverse gear is installed. All outboard fittings are suitable for fresh or salt water, and inboard bronze stuffing boxes are provided on the rudder post and propeller shaft. The boat is equipped with a twenty-gallon gasoline tank with outboard filling connection and arranged with pressure feed, Lunkenheimer regulator, pressure pump and air gauge.

Sea Bright Dories

The Sea Bright Dory Works of Long Beach, N. J., is centering a good deal of its attention on two Sea Bright cruisers, which have the same general underwater lines as the famous Sea Bright dories. Having flat bottoms, these boats may be readily beached without cradles, and being of shallow draft they may be used in inland waters, while their seaworthiness is nevertheless sufficient, it is said, to permit them to ride out a storm with little discomfort to the passengers. One of these boats is a 40-footer with a 10-foot beam, which has a large midship cabin with toilet and galley forward and stateroom in the bow. The motor is installed partly under the roomy cockpit.

X-Celo Runabouts

The Milwaukee Yacht & Boat Co. of Milwaukee, Wis., makes a specialty of standardized runabouts and hydroplanes ranging from 18 to 33 feet in length, the 33-footer, which is one of the newest X-Celo designs, being a mahogany-planked runabout with special features embodied in the lines of the hull. Abundant speed, combined with the utmost in comfort and safety, are the qualities which are declared to characterize this new X-Celo De Luxe. The keel and frames are of white oak and all trim, including also the cockpit interior, is of selected African mahogany. The cockpit is unusually large and roomy, and is fitted with deep-spring genuine leather-covered seats and large wicker chairs to afford an exceptional degree of comfort. The motor, which is installed forward under hinged hatch covers, is a six-cylinder machine of the four-cycle type, provided with electric self-starter, and controlled from the steering wheel. The guaranteed speed of this model is 28 miles per hour.

Saint Louis Craft

The Saint Louis Yacht & Boat Co. of St. Louis, Mo., builds an exceedingly extensive line of high-class cruisers, houseboats, runabouts, launches, hydroplanes, etc. A model which has recently been perfected is a 40-foot modified V-bottom military express cruiser that has already received a great deal of favorable attention. This model, which is exceedingly attractive in inboard and outboard design, has been evolved in response to an increasing demand for speed in combination with seaworthiness and comfort in a one-man cruising yacht. Although only 40 feet in length this cruiser has three main compartments, each with full headroom, besides a commodious bridge deck and cockpit. A roomy galley forward is supplied with all the equipment which is usually found on much larger boats, and the adjoining main cabin has accommodations for seating eight persons at the portable dining table, and for sleeping four to six. The power plant is installed beneath the bridge deck with all controls brought to the helmsman's position, and with a six-cylinder 5½x6-inch motor the boat attains a speed of 16 to 20 miles an hour. The woods used in this boat are especially selected, and the construction is high-grade throughout.

Knox 20-Footer for Coast Guard Service

The Camden Anchor-Rockland Machine Co. of Camden, Me., has built this year for the U. S. Coast Guard Service seven 20x5¾-foot open boats of the type shown in the accompanying illustration, and is carrying this model in stock for general duplication among the trade. Two of the boats which were built for the government were designed with tunnel stern, as they were obliged to have a maximum draft of 12 inches, being intended for use in southern rivers. The other five boats have the regulation keel and are used on the coast where they are declared to be giving excellent satisfaction. Each boat of this type is fitted with a Knox 5½ h.p., single-cylinder motor, Joe's reverse gear and McClellan spray hood. The frame throughout is of Maine oak, the planking of Maine cedar, and the fastenings are of copper.

Pommer Detachable Motor Rowboat

The Pommer Boat Building Co. of Milwaukee, Wis., manufactures a rowboat which has a number of special features to make it suitable for use with the outboard motor. For instance, an unusually thick white oak transom is used, while the stern post is continuous from the top of the transom to the bottom of the keel edge. As a means to reducing vibration to a minimum, the fastenings are of large copper nails, spaced close together, with screws used in the frame wherever it is possible. By means of ring-bolts fore and aft this boat may be hung in a boathouse with the least possible trouble. One of the more popular Pommer models is the Fisherman's Chum, Jr., which measures 16 feet in length by a 4-foot beam.

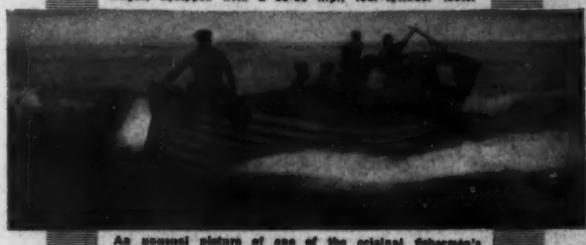
Boat & Auto Supply Co.'s Line

The Boat & Auto Supply Co. of Bayonne, N. J., which has yard and store houses at the foot of East Forty-sixth street, is carrying in stock, ready for quick delivery, boats from 10 to 40 feet in length, including canoes, rowboats, motor and rowing tenders, and flat bottom skiffs, and handles as well a line of boat accessories and new and used engines. This company is prepared to design and construct special boats to any desired specifications, and also to make alterations and repairs to hulls and machinery and to install new machinery.

An attractive 30 x 8-foot Toppan raised-deck cruiser equipped with a 20 h.p. Kermath motor

Fay & Bowen 32-foot Family Special runabout designed to meet the demand for a boat having ample freeboard

The Speedway Speedabout, a Seabury creation 25 feet in length, equipped with a 22-28 h.p., four-cylinder motor

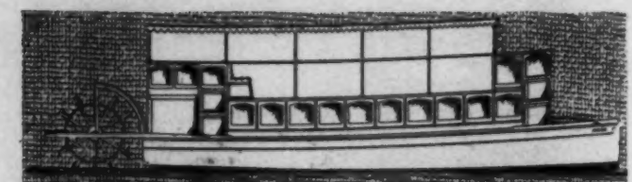


An unusual picture of one of the original fishermen's dories after which Sea Bright dories are modeled

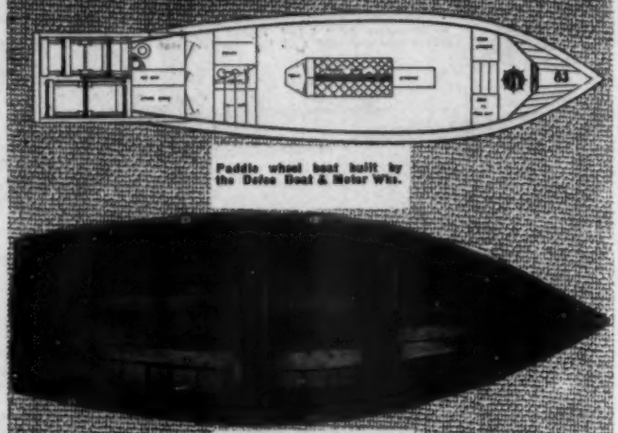
The 33-foot Milwaukee X-Celo De Luxe which is characterized by abundant speed, comfort and safety

A neat little hydroplane built by the Saint Louis Yacht & Boat Co., which company specializes in high-grade craft

Knox runabout, a 20-footer used by the Coast Guard, which is carried as a stock model by the Camden Anchor-Rockland Machine Co.



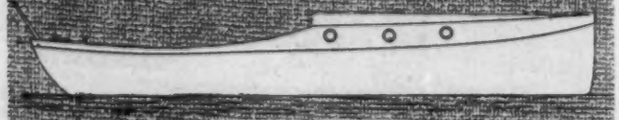
Paddle wheel boat built by the Defoe Boat & Motor Wks.



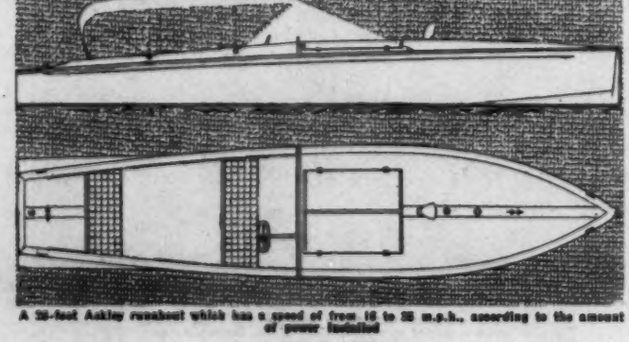
A round-bottom tender offered by W. H. Delano

The 10-foot Davis Dink ready for the motor

The Kidd Kruser, for outboard motor and sail



Stearns & McKay 25-foot raised-deck cruiser



A 26-foot Ackley runabout which has a speed of from 16 to 35 m.p.h., according to the amount of power installed

Defoe Paddle Wheel Boat

The Defoe Boat & Motor Works of Bay City, Mich., has a line of open boats, runabouts, cruisers, etc., which it can furnish in pattern form, knock-down or complete and ready for the water. A model offered by this company which is rather out of the ordinary, being intended principally for use on shallow and weed-filled waters, is a stern paddle wheel boat, design of which is shown herewith. This boat has a length of 30 feet by a beam of 8 feet and with a 22 h.p. motor is declared to make a speed of 10 miles an hour. The company points out that while the stern wheel type is clumsy in appearance and requires a system of gearing to connect the motor with the paddle wheel, it has the advantage of practical immunity from subaqueous growth, while permitting the full power of the motor to be devoted to useful work.

Delano Yacht Tenders

W. H. Delano of Fairhaven, Mass., makes a specialty of two small yacht tenders which may be used with detachable motors. One of these is a 12-foot round-bottom boat of strong construction, which is intended to carry six or seven persons with perfect safety. This boat has a strong oak keel and the stem and ribs are also of oak. It is finished in cypress or mahogany, and the planking is put on in full lengths without butts. The other model is a flat-bottom boat made in the 12 and 14-foot lengths with 4-foot 2-inch beam. This model is intended to serve not only as a dinghy, but for all-around purposes, and is declared to be safe and of ample capacity. Oak framing and cedar planks are used, and the hull is fastened throughout with galvanized iron fastenings.

Davis Dinks

These popular stock tenders are built in lengths of 8, 10, 12, 14 and 16 feet, and range in widths from 42 to 60 inches. They are all of lap-strake construction and are made in mahogany or oak trim as desired. The mahogany-finished boats are constructed with planking of selected cedar, keel and deadwood of white oak, and with transom, gratings and wales of mahogany with the sheerstrake and seats of mahogany, Spanish cedar or redwood, as desired. The same general specifications apply to the oak-trimmed boats, except that the sheerstrake and seats are of cedar or cypress and the transom gratings and wales are of oak, or other suitable wood, such as chestnut or hard pine. These boats are built by the Davis Boat Works Co., Inc., of Sandusky, O. The smallest motor tender of the line is the 10-footer shown in the accompanying illustration. This hull complete, but without motor, is sold for $125 in mahogany trim and $110 in oak trim.

Kidd Kruser

Simmons & Slade, of 5 Nassau Street, New York, build a little boat known as the Kidd Kruser, which is designed for use as a motor boat, a sail boat and a rowboat, being furnished equipped with Evinrude motor, sail, oars, etc. This boat is 14 feet in length with a beam of 6 feet, and is decked over forward to form a locker for the stowage of the outboard motor and the sail. An oak centerboard is provided for use when sailing, and the mast and sprit are constructed of spruce and are jointed, so that they can be stowed under the seats when not in use. The hull is varnished inside and is painted white outside above the waterline, while the underbody is protected from barnacles and seaweed by a heavy coating of green copper paint. This boat is intended for general knockabout purposes, is strongly constructed, and is sold complete with motor, oars, sail and rudder for $185.

Stearns and McKay Fast Service Launches

The Stearns & McKay Co., of Marblehead, Mass., have standardized a 35-foot and a 37-foot fast service launch for the 1916 season. These boats are beautifully designed and are declared to give the maximum of comfort with powerful, seaworthy qualities. There is a good-sized cockpit aft with plenty of room for comfortable chairs if desired. Amidships there is an observation cabin, and there is a cockpit forward where the steering gear and controls are located, and from whence immediate access to the machinery is obtained by a sliding hatch directly forward of the wheel. The speed is 15 to 20 miles an hour, according to the power selected. This firm has also put out a 25-foot raised-deck cruiser which is capable of service in practically any weather. There is a good-sized cockpit and the raised deck forward gives a cabin which is well furnished with lockers, berths, stove space, etc. With a 12 h.p. motor it is declared that a speed of 10 miles per hour may be maintained.

The Ackley 26-Foot Runabout

The Ackley Boat Building Co., of Main and Water Streets, Cincinnati, O., builds a line of speed boats and hydroplanes from 16 to 30 feet in length. One of these boats, a 25-foot 11-inch runabout, is shown in the accompanying plan. This boat has a beam of 5 feet 8 inches, a seating capacity of from eight to ten persons, and a speed of from 16 to 35 miles per hour, according to the power installed. It has full automobile control, a hatch over the fireproof engine compartment, comfortable seats and lots of room. The framing is entirely of white oak, and the planking is of white cedar, saturated in a solution of arsenic to make it proof against rot and plant life. It is fitted with an aluminum cowl dash and disappearing windshield, and the other fittings are of high quality. The hull is finished with eight coats, each rubbed down, and the color may be tan, lavender, lemon, wine, black or white.

The 18-Foot Advance Old Glory

Instead of the forty-eight models which the Michigan Steel Boat Co. of Detroit, Mich., has had on the market for the past few years, this concern is now cutting down its line to about four motor boats and only three or four styles of rowboats. This makes it possible to give much better value in these few models, as the attention and expense which have hitherto been given to the complete line will now be concentrated on them. The 18-foot Advance Old Glory, which has always been one of the most popular Michigan boats, will be the leader for 1916, and great things are expected with this model. It has a V-transom stern and will carry from eight to ten persons comfortably, while the engine in it, a reversible two-cycle Detroit, is said to be so simple that a small boy can operate it without the least difficulty. As is well known, Michigan steel boats are made of heavily galvanized steel, cut in regular pattern strips and lock-seamed and welded together by pneumatic hammers. They are fitted with air tanks and are declared to be absolutely non-sinkable and non-leakable.

Dunphy Stock Boats

The Dunphy Boat Manufacturing Co. of Eau Claire, Wis., builds a line of stock boats which have good lines, are seaworthy and are declared to be exceedingly speedy for their length and power. Dunphy frame construction is extra heavy, with the ribs in one length from gunwale to gunwale, and closely spaced. The foundation for the engine is installed in such a way that vibration is practically eliminated. All fastenings are galvanized and screw-fastened throughout. One of the most popular Dunphy models is a 26-footer with 5½-foot beam, which is furnished completely built or in knock-down form. This model may be equipped with any engine from 12 to 20 h.p. and is declared to have attained a speed of 18 miles an hour with a 20 h.p. Gray. One of these boats has recently been purchased by the U. S. Government for the use of the superintendent of the Indian Reservation Service, at Leech Lake, Minn. This model is illustrated on page 66.

Michigan 18-foot steel open boat

M., B. & A. S. Co.'s Motor Boats

The Motor, Boat and Auto Supply Co. of Cincinnati, O., builds a line of rowboats, canoes and high class motor boats, including cruisers, houseboats, fast passenger boats, etc., and is also prepared to furnish boat frames and planked hulls. In our September issue we showed a photograph of one of this concern's fast cabin cruisers, which was called Lucky George, but we erroneously gave the address as Cleveland instead of Cincinnati. One of this firm's specialties is a line of houseboats, which are fully equipped with all necessities for comfortable living and cruising. This type of boat will carry more weight and draw less water than any other craft of its approximate dimensions, and it will run in shallow water and can be beached almost anywhere. This firm is also in a position to build practically any kind of boat to order, and it buys and sells second-hand engines in addition to carrying new motors and marine accessories.

Monitor K-D Boats

The Monitor Boat & Engine Co. of Newark, N. J., has a complete line of K-D frames for the construction of open and cabin pleasure boats, boats for business, passenger and freight carriers, sight-seeing craft for resorts, and boats for mail and express service, etc. Monitor fully-fitted frames leave nothing for the purchaser to do except to re-erect and fasten the fitted parts together permanently before proceeding with the planking. These frames are entirely set up in the factory before shipping and are marked so that by following the instructions furnished with each frame the amateur may construct his own boat in a very short time. While beginners are advised to purchase these fully fitted frames, those who have more time and more experience at their command may obtain what are called ordinary frames—that is, frames which are complete, but which have not been fitted together in the factory. Owing to the small amount of labor involved, these frames are cheaper than the other type.

Jones & La Borde Detachable Motor Rowboats

The Jones & La Borde Co., of Oshkosh, Wis., builds a line of boats which are sold under the name of Chief Oshkosh, and which are intended for use with detachable motors. These boats are all carvel built, and the construction in all of them is declared to be of uniform excellence throughout. The timbers are unusually heavy and the planking is of ⅝-inch selected pine and cypress. The planking is fastened to the ribs with solid copper nails and screws are used wherever it is possible. The 16-footer shown in the accompanying illustration has a rather unique seating arrangements, there being, in addition to the bow and stern seats, three revolving chairs set on the center line of the hull. Painted on the inside with three coats of light gray and on the outside with a like number of coats of the best spar varnish, this boat is offered complete with 2 h.p. detachable motor for $135.

Evinrude Round-Bottom Boat

The Evinrude Motor Co. of Milwaukee, Wis., builds a 16-foot round-bottom boat which is intended specifically for use with the Evinrude outboard motor, although, of course, it is adapted to any type of detachable motor. It is not designed as a rowing boat, although oars and oarlocks are provided in case of emergency. This boat is made rather heavier than is standard for a 16-footer, and this increased weight adds to its strength and safety, making it particularly desirable for family use. The transom is extra wide, reinforced by steel dowels, and the starboard stern seat is long enough to allow the operator to handle the motor without having to turn around. The boat is evenly balanced so that the bow will not rise out of the water when the motor and its operator are in the stern. The planking of this craft is of ⅝-inch cypress and the ribs, transom, seats and gunwales are of oak. While the Evinrude Company has not yet given any specific information on its 1916 models, we understand that important announcements are to be made later.

The Caille Telescope

For use with its own and other outboard motors the Caille Perfection Motor Co. of Detroit, Mich., is manufacturing a rowboat which comes in three watertight sections, so shaped that they may nest one within another. By having the boat so designed a considerable expense in shipping is saved, while it is pointed out that the boat may be easily accommodated ashore or in a boathouse and may be transported overland with the least possible trouble. Each section of this hull is sufficiently buoyant to float its occupants, but no section is too heavy for easy handling by one man. The sections are fastened together by a simple locking device, and it is declared that the boat as a whole is strong enough to withstand any sea in which an ordinary rowboat would be expected to venture out. The Telescope is 16 feet in length by a beam of 46 inches.

Morris Canvas-Covered Motor Boats

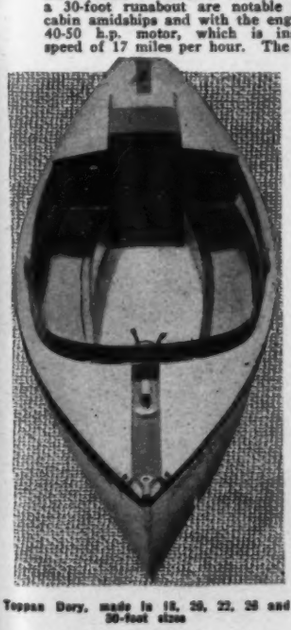
B. N. Morris, Inc., of Veazie, Me., has been specializing for a number of years in canvas-covered canoes, and is now building two stock canvas-covered motor boats. These boats are both 20 feet in length, but have different widths and are slightly dissimilar in interior arrangement. The Model B, shown in the accompanying illustration, is fitted with a two-cylinder Palmer motor with Standard reverse gear and Hyde propeller, and is declared to make 14 miles per hour with one person. The hull is constructed with wide, flat cedar ribs, having very little space between, and with 5/16-inch cedar planking, thoroughly copper fastened. Outside of this solid planked hull there is a canvas cover which, it is declared, will not tear or break unless it comes in contact with a very sharp ledge or spike. The deck beams are all reinforced with gunwales and metal angles, and the bottom of the boat is strengthened by the timbers and braces to take care of vibration.

Brooks 17-Foot Stepless Hydroplane

The Brooks Manufacturing Co. of Saginaw, Mich., has recently designed a 17-foot V-bottom stepless hydroplane, which is declared to have proven especially satisfactory from a speed standpoint, 35 miles per hour being obtained when properly powered. This new boat, which, like all other Brooks models, may be obtained complete or in knock-down, is very strongly constructed throughout with selected white oak frames, and ¾-inch Louisiana red cypress planking. The frames are spaced very closely together, affording exceptional strength, and it is said that the hull is capable of carrying any light-weight high-speed motor within a reasonable range of power. This boat has a beam of 45 inches and with open cockpit will seat from six to eight persons, or with bulkhead installed for automobile control, four persons. The hull is furnished knocked down complete at a price of $40, or finished ready for the water for $85. These prices cover the open boat without hatch and bulkhead construction, but with this and an auto control steerer mounted on the bulkhead, the finished hull is sold for $125.

Racine Stock Models

The Racine Boat Co. of Racine, Wis., designs and builds a line of high-grade motor boats of which a 45-foot express cruiser, a 38-foot raised-deck cruiser, and a 30-foot runabout are notable models. The 45-footer is designed with main cabin amidships and with the engine placed in a small trunk cabin forward. The 40-50 h.p. motor, which is installed with full automobile control, gives a speed of 17 miles per hour. The 38-foot raised-deck cruiser is arranged for sleeping accommodations for eight persons, and the cockpit is large and roomy. A 25-35 h.p. motor is installed in the main cabin amidships. The accompanying design shows the 30-foot Lake runabout, which has a beam of 6½ feet, and is designed for heavy weather, having good freeboard and seaworthy qualities. The motor is placed forward under the hood and is equipped with electric starter, electric lights and full automobile control.



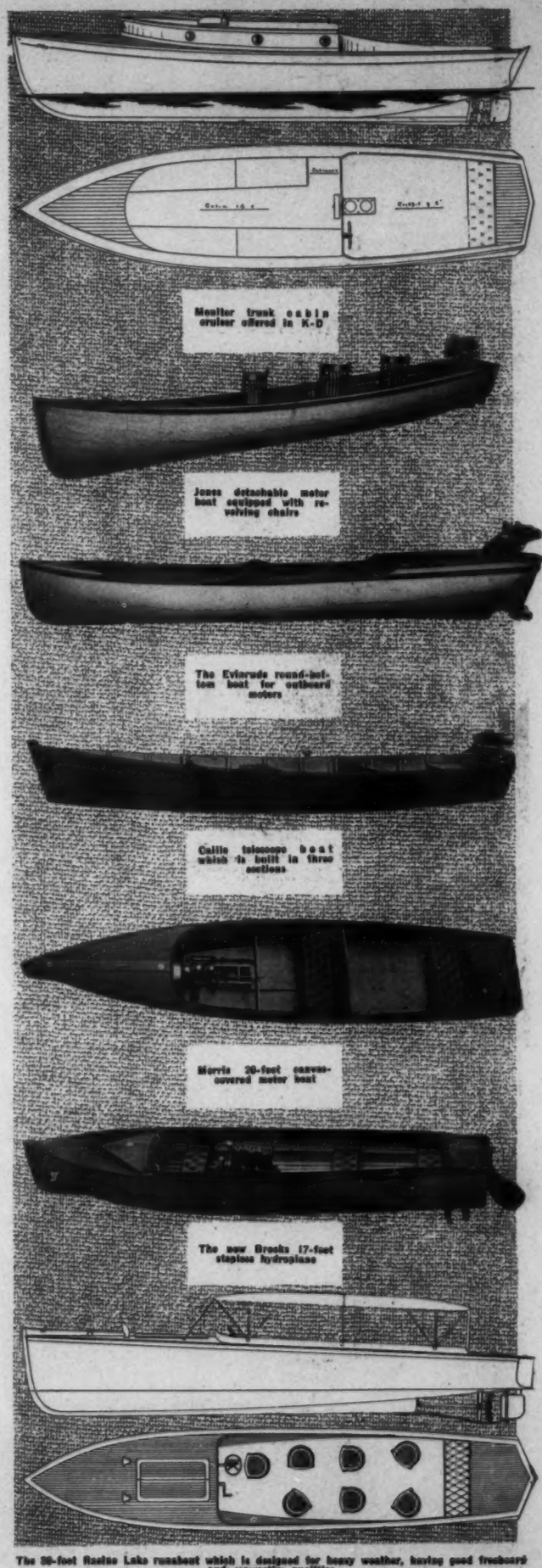
Toppan Dory, made in 18, 20, 22, 26 and 30-foot sizes

Bluebirds in Three Models Only for 1916

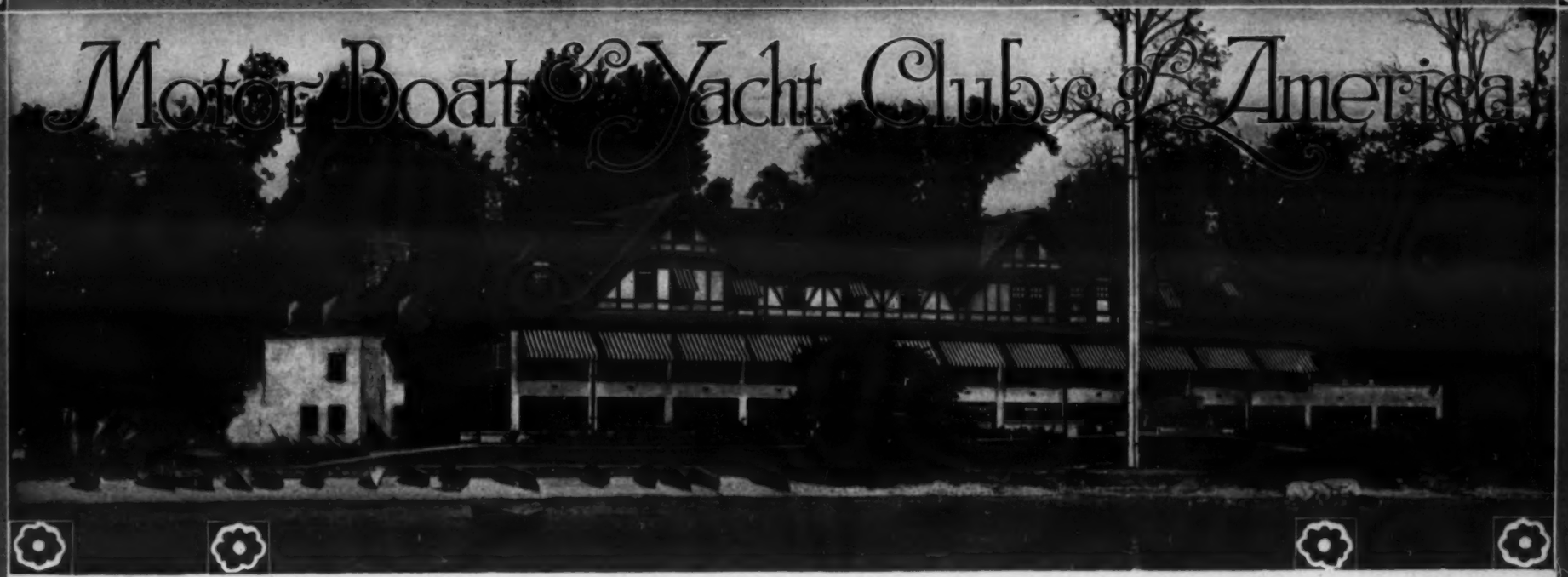
The Detroit Boat Co. of Detroit, Mich., is devoting its entire attention this year to three models of the well-known Bluebird motor boats, and is specializing particularly on the 18-foot model. This model has a seating capacity for six persons and is declared to be a seaworthy and efficient craft in every way. It will be fitted with a 10 h.p. four-cylinder, four-cycle engine complete with magneto and reverse gear, and owing to quantity production will be offered at an unusually low price. The two other boats in this line are 16 and 20 feet in length.

Hacker Runabouts

The Hacker Boat Co., of Albany, N. Y., turns out a number of high-grade stock runabouts, ranging in length from 24 to 32 feet, and has also a number of designs for racing hydroplanes. The general specifications of the Hacker runabouts include oak framing with hackmatack transom knee and spruce or fir engine stringers extending two-thirds the length of the boat; planking of mahogany, selected in the timber and sawed to obtain suitable matching of woods; decks of narrow strips of mahogany alternating with narrower strips of white pine or cedar, and interior joiner work of mahogany.


Monitor trunk cabin cruiser offered in K-D
Jones detachable motor boat equipped with revolving chairs
The Evinrude round-bottom boat for outboard motors
Caille telescope boat which is built in three sections
Morris 20-foot canvas-covered motor boat
The new Brooks 17-foot stepless hydroplane

The 30-foot Racine Lake runabout which is designed for heavy weather, having good freeboard and seaworthy qualities



The new club house of the Stamford Yacht Club ranks first among the Country's most beautiful ones on Long Island Sound

More Than Eight Hundred Clubs Interested Solely in Motor Boating and Yachting—An Indication of the Great Activity in the Sport and Industry in America—The First Complete List of This Country's Representative Clubs Ever Published

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Adirondack M. B. C., Carthage, N. Y.
Aeolian Y. C., Alameda, Cal.
Agawan M. B. Assn., Ipswich, Mass.
Akron L. C., Akron, O.
Albany Y. C., Albany, N. Y.
Alexandria M. B. C., Alexandria, Va.
Alpha B. C., Chester, Pa.
Ambrose Channel Y. C., Brooklyn, N. Y.
American Y. C., Newburyport, Mass.
American Y. C., Rye, N. Y.
Amicus B. C., Jamaica Bay, L. I.
Anabas Bay C., Grassy Pt., Jamaica Bay, N. Y.
Anchor Y. C., Bristol, Pa.
Androscoggin Y. C., Wayne, Me.
Annisquam Y. C., Annisquam, Mass.
Appleton B. C., Appleton, Wis.
Appomattox M. B. C., Petersburg, Va.
Arcanum Y. C., Bay 22nd St., Brooklyn, N. Y.
Arlington M. B. C., Arlington, N. J.
Associated Y. & P. B. C. of America, Chicago, Ill.
Astoria M. B. C., Astoria, L. I.
Astoria M. B. C., Astoria, Oregon.
Atheman Y. C., E. Oakland, Cal.
Ath. & B. C. of Minneapolis, Minn.
Atlantic City M. B. C., Atlantic City, N. J.
Atlantic City Y. C., Atlantic City, N. J.
Atlantic Y. C., Richmond, Va.
Atlantic Y. C., Sea Gate, New York City.
Camden M. B. C., Camden, N. J.
Camden Y. C., Camden, Me.
Camden Y. C., Camden, N. J.
Canarsie Y. C., Sand Bay, Canarsie, L. I.
Cape Ann Y. C., Gloucester, Mass.
Cape Cod Y. C., Orleans, Mass.
Cape May Y. C., Cape May, N. J.
Cape Vincent M. B. C., Cape Vincent, N. Y.
Cape Vincent Y. C., Cape Vincent, N. Y.
Capital Y. C., Ft. 9th St., Washington, D. C.
Capitol Y. C., Marshall Hall, Md.
Carlisle Y. C., Ft. 34th St., Camden, N. J.
Carlstadt B. C., Carlstadt, N. J.
Carolina (South) Y. C., Charleston, S. C.
Carolina Y. C., Wrightsville Beach, N. C.
Carondolet M. B. C., St. Louis, Mo.
Casco Y. C., South Freeport, Me.
Cassville M. B. C., Cassville, Wis.
Catskill Y. C., Catskill Creek, N. Y.
Cayuga Lake Y. C., Kidders, N. Y.
Cedar Lake Y. C., Cedar Lake, Wis.
Cedar Rapids B. C., Cedar Rapids, Ia.
Cedar Y. C., Island Heights, N. J.
Cedarhurst Y. C., Lawrence, L. I.
Centerport Y. C., Centerport, L. I.
Chadakoin B. C., Jamestown, N. Y.
Chatham M. B. C., Chatham, Ont.
Chatham Y. C., Chatham, Mass.
Cheboygan Boating Assn., Cheboygan, Mich.
Cheemaun B. C., New London, Conn.
Crystal Lake B. C., Frankfort, Mich.
Davenport B. C., Davenport, Ia.
Del Rey M. B. C., W. Detroit, Mich.
Delaware River C., Torresdale, Pa.
Delaware Y. C., Wilmington, Del.
Des Moines P. B. C., Des Moines, Ia.
Detroit B. C., Belle Isle, Detroit, Mich.
Detroit Y. C., Detroit, Mich.
Detroit M. B. C., Detroit, Mich.
Dexter P. B. C., Dexter, N. Y.
Diamond Point Y. C., Canarsie, L. I.
Dinvamanish L. C., Seattle, Wash.
Dixon B. C., Dixon, Ill.
Dorchester Y. C., Dorchester, Mass.
Dubuque M. B. C., Dubuque, Ia.
Duluth B. C., Park Point, Duluth, Minn.
Dunedin Y. C., Dunedin, Fla.
Duxbury Y. C., Duxbury, Mass.
East Gloucester Y. C., E. Gloucester, Mass.
East Greenwich Y. C., East Greenwich, R. I.
East Norwalk Y. C., Norwalk, Conn.
Eastern Y. C., Marblehead, Mass.
Eau Claire L. & B. C., Eau Claire, Wis.
Eau Gallie Y. C., Eau Gallie, Fla.
Edgemere Y. C., Fort Park, Detroit, Mich.
Edgewater M. B. C., Edgewater, N. J.
Edgewater Y. C., Edgewater, Mass.
Edgewood Y. C., Edgewood, R. I.
Egg Harbor Y. C., Broad Channel, Jamaica Bay, L. I.
Green Bay Y. C., Green Bay, Wis.
Green Lake Y. C., Green Lake, Wis.
Greenwood Lake B. & C. C., Greenwood Lake, N. Y.
Guttenberg M. B. C., Guttenberg, Ia.
Hackensack Boating Assn., Hackensack, N. J.
Halifax River Y. C., Daytona, Fla.
Hamilton Y. C., Gravesend Bay, L. I.
Hammond M. B. C., Hammond, Ind.
Hampton Roads Y. C., Norfolk, Va.
Hampton Y. C., Southampton, L. I.
Harbor Haven Y. C., Springfield Gardens, L. I.
Harbor View Y. C., East Boston, Mass.
Harlem Y. C., City Island, N. Y.
Harpswell Y. C., South Harpswell, Me.
Hartford Y. C., Hartford, Conn.
Harvard Y. C., Cambridge, Mass.
Havana Y. C., Havana, Cuba.
Haverhill Y. C., Haverhill, Mass.
Hawaii Y. C., Pearl Harbor, Hawaii.
Hempstead Harbor Y. C., Glen Cove, L. I.
Hempstead Bay Y. C., Elder Island, Freeport, L. I.
Highland B. C., Peekskill, N. Y.
Hingham Y. C., Hingham, Mass.
Hoboken Y. C., Hoboken, N. J.
Holly Beach Y. C., Wildwood Crest, N. J.
Horseshoe Harbor Y. C., Larchmont, N. Y.
Houston L. C., Harrisburg, Tex.
Lake Winnepesaukee Y. C., Alton Bay, N. H.
Lake Worth Y. C., West Palm Beach, Fla.
Larchmont Y. C., Larchmont, N. Y.
Lavallette Y. C., Lavallette, N. J.
Lawrenceville B. C., 43rd St., Pittsburg, Pa.
Lebeau Lac B. C., Barton, Vt.
Lehigh B. C., Allentown, Pa.
Lincoln Park Y. C., Chicago, Ill.
Lincoln P. B. C., Chicago, Ill.
Linekin Lake Y. C., East Boothbay, Me.
Little Neck Bay Y. C., Bayside, L. I.
Lloyd's Harbor Club, New Rochelle, N. Y.
Long Branch M. B. Assn., Long Branch, N. J.
Longport Y. C., Longport, N. J.
Lorain P. B. C., Lorain, O.
Los Angeles M. B. C., Wilmington, Cal.
Lotus Club (Yacht Div.), St. Joseph, Mo.
Lotus M. B. Assn., Watertown, N. Y.
Louisburg Y. C., Louisburg, Cape Breton, N. S.
Louisville P. B. C., Louisville, Ky.
Lowell M. B. C., Pawtucketville, Mass.
Ludington Y. C., Ludington, Mich.
Lynchburg B. C., Lynchburg, Va.
Lynn Y. C., Lynn, Mass.
Lyons Y. C., Lyons, Ia.
McHenry B. B. C., McHenry, Ill.
McKeesport L. C., McKeesport, Pa.

Atlantic Y. C., Wrightsville Beach, N. C.
Audubon Y. C., 165th St., New York City.
Augusta Y. C., Augusta, Me.
Avalon Y. & M. B. C., Avalon, N. J.
Babylon Y. C., Babylon, N. Y.
Baltimore Cor. Y. C., Baltimore, Md.
Baltimore M. B. C., Baltimore, Md.
Baltimore Y. C., Baltimore, Md.
Bangor Y. C., Bangor, Me.
Barnegat Bay M. B. C., Barnegat Bay, N. J.
Barnegat Y. C., Barnegat, N. J.
Barrington Y. C., Bristol, R. I.
Barton B. C., Barton, Vt.
Bay City B. C., Bay City, Mich.
Bay City Y. C., Essexville, Mich.
Bay Haven Y. C., York Beach, Me.
Bay Head Y. C., Jamaica Bay, L. I.
Bay Point Y. C., Jamaica Bay, L. I.
Bay Shore M. B. C., Bay Shore, L. I.
Bay Spring Y. C., West Barrington, R. I.
Bay State Y. C., Revere Beach, Mass.
Bay Waveland Y. C., St. Louis, Miss.
Bayonne Y. C., Bayonne, N. J.
Bayside Y. C., Bayside, L. I.
Bayswater Y. C., Far Rockaway, N. Y.
Bayswater Y. C., Bayonne, N. J.
Bayview Y. C., Jamaica Bay, L. I.
Beach Haven Y. C., Beach Haven, N. J.
Beachmont Y. C., Revere, Mass.
Beaufort Y. C., Beaufort, N. C.
Beaumaris Y. C., Beaumaris, Ont.
Beaumont Y. C., Beaumont, Texas.
Beechhurst Y. C., Whitestone, N. Y.
Belfast Y. C., Belfast, Me.
Belle Harbor Y. C., Rockaway Beach, Long Island.
Belleville M. B. C., Belleville, N. J.
Bellevue B. C., Bellevue, Ia.
Bellingham Y. C., Bellingham, Wash.
Bellport Y. C., Bellport, L. I.
Belmar Y. C., Belmar, N. J.
Belmont Y. C., Philadelphia, Pa.
Belvedere Y. C., Belvedere, Cal.
Benridge B. C., Benridge, Minn.
Ben Hur Beach & B. C., Matagorda, Texas.
Ben Ma Chree B. C., Bath Beach, N. Y.
Bensonhurst Y. C., Bensonhurst, L. I.
Bently Y. C., Tottenville, S. I.
Bergen Beach Y. C., Brooklyn, N. Y.
Bergen Point Y. C., Bayonne, N. J.
Beverly Y. C., Buzzards Bay, Mass.
Beverly Y. C., Beverly, N. J.
Biloxi Y. C., Biloxi, Miss.
Biscayne Bay Y. C., Cocoanut Grove and Miami, Fla.
Black Rock Y. C., Bridgeport, Conn.
Blue Island P. B. C., Blue Island, Ill.
Boat & Boat House Assn., Seneca Point, N. Y.
Boothbay Harbor Y. C., Boothbay Harbor, Me.
Boston Y. C., Boston, Mass.
Bradentown M. B. C., Bradentown, Fla.
Brandywine B. C., Wilmington, Del.
Branford Y. C., Brockett's Point, Conn.
Bras D'or Y. C., Baddeck, Nova Scotia.
Bridesburg Y. C., Bridesburg, Phila., Pa.
Brightwaters Assn., Bayshore, L. I.
Bristol Y. C., Bristol, R. I.
Broad Channel Y. C., Jamaica Bay, L. I.
Brockport Y. C., Hamlin, N. Y.
Bronx County Y. C., Clason Point, Bronx, N. Y.
Brooklyn Y. C., Brooklyn, N. Y.
Buckeye Lake Y. C., Columbus, O.
Bucks Harbor Y. C., South Brooksville, Me.
Buffalo L. C., Grand Island, N. Y.
Buffalo Y. C., Buffalo, N. Y.
Bunker Hill, Y. C., Charlestown, Mass.
Burlington L. C., Burlington, Ia.
Byram River Y. C., Port Chester, N. Y.
Cadillac B. C., Cadillac, Mich.
Calhoun Y. C., Minneapolis, Minn.
California Y. C., Alameda Point, Oakland, Cal.
Cambridge Y. C., Cambridge, Md.
Chelsea B. C., Norwich, Conn.
Chelsea Y. C., Atlantic City, N. J.
Chelsea Y. C., Chelsea, N. J.
Chelsea Y. C., Chelsea-on-Hudson, N. Y.
Chelsea Y. C., Chelsea, Mass.
Chesapeake Y. C., Easton, Md.
Chester Y. C., Chester, N. S., Can.
Chicago Ath. Assn. Yachtsmen, Chicago, Ill.
Chicago M. B. C., Lincoln Park Harbor, Chicago, Ill.
Chicago P. B. C., Chicago, Ill.
Chicago Y. C., Ft. Monroe St., Chicago, Ill.
Chippewa Y. C., Chippewa Bay, Thousand Islands.
Chula Vista Y. C., Chula Vista, Cal.
Circle Bar M. B. C., Wheeling, W. Va.
City Island Y. C., City Island, N. Y.
City Point Y. C., New Haven, Conn.
Clason Point Y. C., Clason Point, N. Y.
Clayton Y. C., Clayton, N. Y.
Clearwater Y. C., Clearwater, Fla.
Cleveland Ice Y. C., Cleveland, O.
Cleveland P. B. C., Cleveland, O.
Cleveland Y. C., Cleveland, O.
Cliff M. B. C., Sea Cliff, L. I.
Clinton B. C., Clinton, Ia.
Cobbasseecontee Y. C., Augusta, Me.
Cobweb Y. C., 153rd St., N. Y. C.
Cockade City Club, Petersburg, Va.
Coeur D'Alene B. C., Spokane, Wash.
Cohasset Y. C., Cohasset, Me.
Collins Cove M. B. C., Salem, Mass.
Colonial Y. C., 138th St., New York City.
Columbia Y. C., Ft. W. 86th St., New York City.
Columbia Y. C., Garden St., Bridesburg, Pa.
Columbia Y. C., Chicago, Ill.
Columbia Y & M. C., Chicago, Ill.
Columbia Y. C., Bridgeport, Conn.
Columbia Y. C., City Point, South Boston, Mass.
Commercial Point Y. C., Dorchester, Mass.
Conanicutt Y. C., Jamestown, R. I.
Coos Bay M. B. C., North Bend, Ore.
Corinthian Y. & Gun C., Beach Haven, N. J.
Corinthian Y. C. of Baltimore, Baltimore, Md.
Corinthian Y. C. of Marblehead, Marblehead, Mass.
Corinthian Y. C. of Philadelphia, Essington, Pa.
Corinthian Y. C. of Providence, Providence, R. I.
Corinthian Y. C. of Cape May, Cape May, N. J.
Corinthian Y. C. of San Francisco, Belvedere, Cal.
Corinthian Y. C. of Washington, Highway Bridge, Va.
Corinthian Y. C., Stamford, Conn.
Coronada Y. C., San Diego, Cal.
Corpus Christi Y. C., Corpus Christi, Texas.
Cottage Park Y. C., Cottage Park, Winthrop, Mass.
Council Bluffs Rowing Assn., Council Bluffs, Ia.
Council Oaks B. C., Sioux City, Ia.
Country Club of Detroit, Grosse Point Farms, Mich.
Country Club of Joplin, Joplin, Mo.
Country Club of Waterford, Waterford, N. Y.
Cowichan Bay Y. C. Vancouver Island, B. C.
Cranberry Lake M. B. C., Cranberry Lake, N. Y.
Crescent A. C., Brooklyn, N. Y.
Crescent M. B. C., Haverhill, Mass.
Crescent Y. C., Watertown, N. Y.
Creve Coeur Y. C., Creve Coeur Lake, Mo.
Eight Bells M. B. C., New Bedford, Mass.
Elder Island Hempstead Bay Y. C., Hempstead Bay, L. I.
Elizabeth Y. C., Ft. Livingston St. Elizabeth, N. J.
Elliott Bay Y. C., Seattle, Wash.
Empire Y. C., Island Creek, Albany, N. Y.
Era Y. C., 33rd St. & Neptune Ave., Brooklyn, N. Y.
Essex Y. C., Newark, N. J.
Etna B. C., Orange Lake, N. Y.
Ette Y. C., Ft. Myrtle St., Ette, Pa.
Eucinal Y. C., Alameda, Cal.
Eureka Y. C., West Lynn, Mass.
Eureka Y. C., Hackensack River, Newark, N. J.
Evanston Y. C., Evanston, Ill.
Evansville B. C., Evansville, Ind.
Everett M. B. C., Everett, Wash.
Everett Y. C., Everett, Wash.
Excelsior Y. C., Brooklyn, N. Y.
Fair Haven Y. C., Bellingham, Wash.
Fairmount Park Y. C., Philadelphia, Pa.
Fall River, Y. C., Fall River, Mass.
Farragut Sportsmen's Assn., Camden, N. J.
Federal M. B. C., of N. Y., Ft. W. 141st St., N. Y. C.
Findlay B. & Can. C., Findlay, O.
Flanders Y. C., Flanders, L. I.
Flat Rock M. B. C., Shawmont, Phila., Pa.
Flatlands Y. C., 619 Rogers Ave., Brooklyn, N. Y.
Florida Y. C., Jacksonville, Fla.
Fond du Lac Y. C., Fond du Lac, Wis.
Fort Atkinson M. B. C., Fort Atkinson, Wis.
Fort Madison L. C., Fort Madison, Ia.
Fort Point Y. C., Fort Point, Stockton, Springs, Me.
Fort Washington Y. C., W. 169th St., N. Y. C.
Fox Lake Y. C., Fox Lake, Chicago, Ill.
Fulton Chain Y. Assn., Old Forge, N. Y.
Gananoque Y. C., Gananoque, Ont., Can.
Galena L. & B. C., Galena, Ill.
Galveston B. & L. C., Galveston, Tex.
Gastinoian M. B. C., Duncau, Alaska.
Geneva Lake B. C. Geneva Lake, Wis.
Genesee Yacht & Racing Assn., Charlotte, N. Y.
Geneva Y. C., Geneva, N. Y.
Germania B. C. of Yonkers, Yonkers, N. Y.
Gilberts Bar Y. C., Near Sewalls Point, Fla.
Gloucester City Y. C., Gloucester City, N. J.
Gloucester Y. C., East Gloucester, Mass.
Golden Gate Y. C., Sausalito, Cal.
Gordon Park M. B. C., Cleveland, O.
Grand Lake Y. C., Grand Lake, Grand Co., Cal.
Grand Rapids B. & Can. C., Grand Rapids, Mich.
Grand Rapids M. B. C., Grand Rapids, Mich.
Grand River Y. C., Painsville, O.
Gravesend Bay Y. C., Bensonhurst, Brooklyn, N. Y.
Grayling M. B. C., Pawcatuck Point, R. I.
Great Kills Y. C., Great Kills, S. I., N. Y.
Great Peconic Bay Y. C., Great Peconic Bay, L. I.
Hudson B. C., Ludlow-on-Hudson, Yonkers, N. Y.
Hudson Park Y. C., New Rochelle, N. Y.
Hudson River Y. C., 92nd St., N. Y. C.
Huguenot Y. C., New Rochelle, N. Y.
Humboldt Bay M. B. C., Eureka, Cal.
Illini Y. C., Clifton Terrace, Ill.
Illinois Valley Y. C., Peoria, Ill.
Independent M. B. C., New Bedford, Mass.
Independent Y. & B. C., Northport, L. I.
Indian Harbor Y. C., Greenwich, Conn.
Indian Lake Y. C., Russell's Point, O.
Inland Lake Yachting Assn., Oshkosh, Wis.
Indian River B. C., Cheboygan, Mich.
Interclub Y. & B. Racing Assn., South Boston, Mass.
Ischoda Club, Norwalk, Conn.
Island City Boating Assn., Rock Island, Ill.
Island Heights M. B. C., Island Heights, N. J.
Island Heights Y. C., Island Heights, N. J.
Islip Y. C., Islip, L. I.
Ithaca M. C., Ithaca, N. Y.
Jackson M. B. C., Jackson, Mich.
Jackson Park Y. C., Chicago, Ill.
Jacksonville P. B. C., Jacksonville, Fla.
Jamaica Bay Y. C., Rockaway Beach, L. I.
Janesville L. C., Janesville, Wis.
Jefferson Y. C., Rockaway Beach, L. I.
Jeffersonville M. B. C., Jeffersonville, Ind.
Jeffries Y. C., Jeffries Point, E. Boston, Mass.
Joliet M. B. & Pleasure Club, Joliet, Ill.
Jubilee Y. C., Tucks Point, Beverly, Mass.
Junior Y. C., San Diego, Cal.
Kalkaska Y. C., Kalkaska, Mich.
Kankakee M. C., Kankakee, Ill.
Kansas City Y. C., Kansas City, Mo.
Keansburg Y. C., Keansburg, N. J.
Kennebeck Y. C., Bath, Me.
Kenka Y. C., Lake Kenka, Penn Yan, N. Y.
Kenosha Y. C., Kenosha, Wis.
Keokuk M. B. C., Keokuk, Ia.
Ketewomoke Y. C., Huntington, L. I.
Keyport Y. C., Keyport, N. J.
Keystone Y. C., Tacony, Phila., Pa.
Keystone Y. C., Woodmere, L. I.
Kill Von Kull Y. C., Bayonne, N. J.
King Phillip B. C., Fall River, Mass.
Kingdom Y. C., Portland, Me.
Kingston Y. C., Kingston, Ont.
Kingston Y. C., Kingston, Mass.
Kittery Y. C., Kittery, Me.
Knickerbocker Y. C., College Point, L. I.
Kootenay L. C., Nelson, B. C.
La Crosse M. B. C., La Crosse, Wis.
La Salle P. B. C., La Salle, Ill.
Lake Bomoseen Y. C., Hydesville, Vt.
Lake Butle des Marts Y. C., Oshkosh, Wis.
Lake Champlain Y. C., Burlington, Vt.
Lake Hopatcong Y. C., Landing, N. J.
Lake Geneva Y. C. Lake Geneva, Wis.
Lake George Club, Lake George, N. Y.
Lake George Regatta Assn., Lake George, N. Y.
Lake Peosta L. C., Dubuque, Ia.
Lake Pepin, Y. C., Lake City, Minn.
Lake Placid Y. C., Lake Placid, N. Y.
Lake Sunapee Y. C., New London, N. H.
Lake Washington Power Boat Assn., Seattle, Wash.
Lake Weir Y. C., East Lake Weir, Fla.
Lake of the Woods Y. C., Winnipeg, Can.
Lakewood B. C., Rocky River Bridge, Lakewood, O.
Lakeside Y. C., Ithaca, N. Y.
Lake St. Louis M. B. C., Lachine, Quebec, Can.
Lake Whatcom M. B. C., Whatcom, Wash.
Lake Whatcom P. B. Assn., Bellingham, Wash.
Macatawa Bay Y. C., Macatawa Bay, Mich.
Madison P. B. C., Madison, Wis.
Mahopac B. C., Lake Mahopac, N. Y.
Manasquan River Y. C., Brielle, N. J.
Manatee River Y. C., Bradentown, Fla.
Manchester L. C., Manchester, Mass.
Manhasset Bay Y. C., Port Washington, L. I.
Manhattan Island Y. C., W. 172nd St., New York City.
Mantoliking Y. C., Mantoliking, N. J.
Marietta P. B. Assn., Marietta, O.
Marine & Field Club, Brooklyn, N. Y.
Mariners Harbor Y. C., Mariners Harbor, L. I.
Marquette Y. C., Marquette, Mich.
Maryland M. B. C., Baltimore, Md.
Maumee River Y. C., Toledo, O.
Maya Landing Y. C., Maya Landing, N. J.
Mecca Y. C., Ft. W. 152nd St., New York City.
Melrose Y. C., Barretts Point, Bronx, N. Y.
Memphis P. B. C., Memphis, Tenn.
Memphramagog Y. C., Newport, Vt.
Mendota Y. C., Madison, Wis.
Menominee Y. C., Menominee, Mich.
Meriden M. B. C., Meriden, Conn.
Metropolitan Y. C., East Saugus, Mass.
Metropolitan Y. C., Pelham Bay, N. Y.
Miami River B. C., Riverdale, Ill.
Miamogue Y. C., Bridgeport, Conn.
Middletown Y. C., Middletown, Conn.
Milford Y. C., Milford, Conn.
Mill Creek Y. C., Flatlands, Brooklyn, N. Y.
Mille Isles L. C., St. Rose, P. Q.
Millvale B. C., Pittsburg, Pa.
Milton B. C., Milton-on-the-Neponset River, Mass.
Milwaukee Y. C., Milwaukee, Wis.
Minnesota B. C., St. Paul, Minn.
Minnesota Y. C., Deep Harbor, Minn.
Minocqua M. B. C., Minocqua, Wis.
Missisquoi Y. C., Swanton, Vt.
Mobile Y. C., Mobile, Ala.
Mohawk B. C., Schenectady, N. Y.
Mohawk Y. C., Bridgeport, Conn.
Moline B. C., Moline, Ill.
Monmouth Club, Red Bank, N. J.
Monona M. B. C., Madison, Wis.
Monroe Y. C., Monroe, Mich.
Monterey B. C., Monterey, Cal.
Moosehead Lake Y. C., Kineo, Me.
Moriches Y. C., Center Moriches, L. I.
Morris Y. C., Pelham Bay, City Island, N. Y.
Morrisania Y. C., 550 Westchester Ave., New York City.
Mosquito Fleet Y. C., South Boston, Mass.
M. B. C. of America, New York City.
M. B. C. of Buffalo, Buffalo, N. Y.
M. B. C. of Eureka, Eureka, Cal.
M. B. C. of Ithaca, Ithaca, N. Y.
M. B. C. of Savannah, Isle of Hope, Ga.
M. B. C. of Seattle, Seattle, Wash.
M. B. C. of Silver Creek, Silver Creek, N. Y.
Mount Hope Y. C., Fall River, Mass.
Muscatine P. B. C., Muscatine, Ia.
Muskegon Country Club Yachtsmen, Muskegon, Mich.
Nahant Dory Club, Nahant, Mass.
Nantucket Y. C., Nantucket, Mass.
Nameaug B. C., New London, Conn.
Nassau Y. C., Lynbrook, L. I.
National Y. C., Toronto, Can.
Naugatuck Valley M. B. C., Shelton, Conn.
Neenah Nodaway Y. C., Neenah, Wis.
Neponset Valley Y. C., Milton, Mass.
Neried B. C., Belleville, N. J.
New Bay Y. C., Jersey City, N. J.
New Rochelle Y. C., Echo Bay, N. Y.
Newark Bay Club, W. Bayonne, N. J.
Newark M. & Y. C., Newark, N. J.
Newark Y. C., Newark, N. J.
New Bedford P. B. C., New Bedford, Mass.
New Bedford Y. C., New Bedford, Mass.

(Continued on page 90)

RACING STUNTS and NOVEL HANDICAPS

This department is now a regular fixture of Motor Boating. It will be maintained throughout the winter for the benefit of race committees who may be hard put when the racing season rolls around again to invent something to interest their fellow club members in the racing line, and to stir up more enthusiasm in club spirit which in many localities is at low ebb.

There are no rules governing this department. We want our readers to send us anything in this line which they think will interest others—any little stunt race which has been a success in your club or tended to increase the fun on Club Day. Any ideas you may have for handicapping boats in a race so that all will have a fair chance to win, will be very acceptable. Put them in simple language so every one can understand them. We pay at least $5 for every contribution which we make use of and will give up as much space each month as the quality of the answers warrant.

A Bucket Race

At about half a mile from the starting point a number of rowboats are anchored (there should be at least one rowboat for every two entries). A number of buckets of various sizes (one bucket to every contestant) are numbered on the bottom inside. The buckets are then distributed among the rowboats, each bucket being inverted. Four pieces of rope ten feet long are then placed in the rowboats for each pail. Numbered slips are prepared corresponding to the numbers on the buckets.

The race is run as follows: Each entry draws a slip, then at a given signal all rush to their boats, start motors, and race to the anchored dinghies. Each owner must find the bucket corresponding in number with the check he holds. He must then tie the four pieces of rope together, fastening one end to the bucket, and the other end to the boat. This done, he tosses the bucket overboard and starts for the finish line. The first boat to finish, wins. Starting from the stake boats before the bucket is tied and cast adrift will disqualify the offending boat. Breaking away of the bucket from insecure tying also results in disqualification. Rules of the road are in force and any infraction of them disqualifies the offender. By using various sizes of buckets things can be made much more interesting. For example, one boat may get away first, drawing a large bucket, while another boat getting away a little later, but with a smaller bucket, may beat the first boat to the finish line. Wooden buckets should be used.

W. M. O., Willimantic, Conn.

Handicap Based on Propeller Slip

I have worked out a method of handicapping boats of all sizes and horsepower, that can run in the same race, giving the slowest boat a fair chance over a hydroplane. By this method the fastest boat is not beaten before she starts, as in some races on account of her giving a large handicap.

Course, 10 miles or more. Each captain of boat entering the race will declare the amount of r.p.m his motor turns at full speed; also the size and pitch of his propeller. The regatta committee states whether his boat is a hydroplane, displacement type, or launch. Horsepower, length and beam do not have to be known.

HANDICAPPING

Hydroplanes .....15% slip
Displacement runabouts .....25% slip
Cabin boats and cruisers.....35% slip
Small open boats.....25% slip

Boat No. 1 is a displacement boat of 1,000 r.p.m. turning a 16 x 22-inch wheel. 25%=15 miles per hour.

Boat No. 2, Cruiser, of 600 r.p.m., turning 18 x 20, 35% slip = 7 miles per hour = 8 min. 35 sec. per mile.

Displacement boat 25% slip = 15 miles per hour = 4 minutes per mile.

Displacement boat must give cruiser 4 minutes and 35 seconds per mile handicap, and the other boats are figured the same. If an owner exceeds his r.p.m. by 10% in the race, he is disqualified, and you can readily see it is an easy matter to tell if he did exceed them.

Start can be made in classes, the slow boats first; or start on handicap time, all finishing together.

This way of handicapping makes the skipper have his boat up to top notch, also showing him whether he is getting all his speed.

This may seem an odd way of handicapping boats, but if you try it, I am sure you will be pleased with the results.

C. S. H., Ozone Park, L. I.

A Handicapping System Which Should Give Good Results

The race described herewith is, of course, a sample race, and changes in regard to distance, etc., can be made to suit local conditions.

1. Race is to be over a three-mile triangle, boats to go ten times around, making a total of thirty miles. Prizes are to be given for the first, second and third boats in.

2. Boats are all to be started together after the usual preparatory gun.

3. During the first eight laps the time is to be taken at the finish of each lap and the handicaps are to be based on the time shown during any one of these laps. As contestants will not know what lap is to be used for the handicapping, they will have to drive their boats at best speed for the entire eight laps.

4. At the end of the eighth lap all boats are to be stopped and tied up to the committee boat, or in some other place where they can be watched to see that no adjustments or changes are made of any kind. When the slowest boat has finished, the committee should have handicaps figured for the entire number.

5. The contestants should now be divided into three divisions. The dividing shall be according to their finishes for the eight laps, the figured handicaps, of course, being considered. The first division shall have the privilege of racing for the first prize, the second division for the second prize, etc. In case of an uneven number of contestants, so that they could not be divided into three divisions, each having the same number of boats, the time of the extra boat can be considered when allotting divisions.

6. As soon as the slowest boat is finished and the divisions are allotted the contestants are notified of the division in which they have fallen and are also notified of the starting time for the last two laps. These last laps are to be started by the boats being sent off in the order of their handicaps. Thus the slowest boat in division three will go off first and the others at the proper intervals until the fastest boat in class one is off. There are several good methods of starting boats in this manner, the best probably being the showing of the boat's number and dropping of a flag at her proper starting time.

7. The first boat coming past the finish at the end of the tenth lap will be the winner, and the rest will follow in their proper order.

The advantages of this system are as follows: No boat will dare run a slow lap in hopes of being timed for handicap in that lap, for by so doing she would undoubtedly lose her place in the first division and would thus be deprived of the chance for first prize. As the operators would have no way of knowing in which of the eight laps they were timed, and would also have to keep going at their best in order to get as good a divisional place as possible, it would be necessary for them to drive at their fastest through the first eight laps. This would prove interesting racing for the spectators. The last two laps being the deciding ones, and due to the boats being sent off with their handicaps allowed at the beginning, the racing would have to be very close. In fact, there is no reason why the boats shouldn't, theoretically, finish at the same time. There have been many races in which the boats were given their handicaps at the start, but in every case there has been trouble to obtain these handicaps. When the contestants know they are being timed for handicap they often purposely slow up, but with this system this would be impossible.

G. T. W., New York City.

PRIZE CONTEST in QUESTIONS & ANSWERS

Starting in Cold Weather

Several Methods Suggested to Make Low-Grade Gasoline Vaporize More Readily—How Freezing Can Be Prevented in the Intake Pipe

THE PRIZE CONTEST--Answers to the First Question in the October Issue

Makes Use of the Electric Current

(The Prize-Winning Answer)

HE who undertakes to navigate his motor boat in freezing weather adds greatly to his troubles by so doing unless he takes steps to offset the natural disadvantages of the gasoline engine in winter as a prime mover. Starting will be the greatest trial to his patience and endurance under normal cold weather conditions.

All gasoline engine operators are aware that no single agent assists in starting as does heat. When the engine is hot it will generally start on the first turn of the crank or in the case of four-cylinder engines even on the spark. The same engine may, however, require "spinning" or priming to start when cold.

Furnace attachments are furnished with several well-known carbureters, to assist in the vaporizing of the fuel by means of heating the air taken in by the carbureter, which, however, do not assist in starting, as the heat is obtained from the exhaust pipe.

Our device is an adaptation of the heated intake, the air being heated before the motor starts, rather than afterwards. The cost is trifling when the convenience and satisfaction and the amount of time saved are considered.

A small funnel of sheet brass should first be made up according to the drawing. This work can be done quickly by any tinsmith.

There will also be needed two pieces of sheet copper ¼ inch x 5 inches, two binding posts, four fiber washers ½-inch in diameter with 3/16-inch holes, and six feet of No. 30 nichrome or German silver resistance wire.

Drill two ¼-inch holes in the large flange of the funnel at points diametrically opposite to one another.

Bend the two pieces of sheet copper as shown, marked holder, lapping the ends and drilling 3/16-inch holes where the binding posts occur. Now make six pin-size holes in the flat side of each of these pieces, using a prick punch on an iron surface.

Insert one end of the wire in the endmost hole of one of the holders and fasten it with a drop of solder. Wind one foot of this wire around a pencil, traveling in one direction close together but not overlapping. This done, remove the pencil and insert the wire in the corresponding hole in the other holder. To save soldering at the end of each length of one foot, carry the wire continuously from one hole to another without cutting and repeat the winding operation, using about a foot for each spiral, of which there are six.

Now attach the holders as illustrated by means of the binding posts and washers, being careful that the shanks of the binding posts are not touching the funnel before you tighten them up.

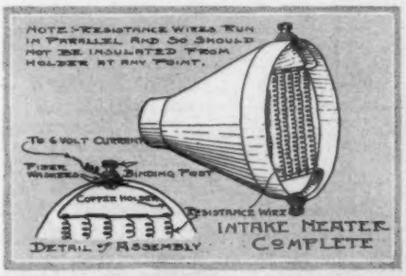
Slip the small flange over the intake of the carbureter, using a paper collar if necessary to make a tight fit. All that remains is to connect the binding posts with a six-volt source of current with a switch in the line.

When it is desired to start with the engine cold, it is only necessary to close the switch, permitting the current to flow through the resistance wire, which will heat up to a sufficient temperature to warm the air entering the carbureter, thus vaporizing the fuel readily and filling the cylinders with a highly explosive gas.

If the water inlet freezes, try carrying the inlet and outlet side by side, with their outboard connections adjacent and wrap the two together with sheet asbestos. Perhaps, however, the outflowing water is used to cool the muffler. In this case the water inlet may be located on the exhaust side of the engine and the outgoing water piped about the water inlet pipe and thence to the muffler. The asbestos covering should be used here also, since heat is at a premium in cold weather.

R. W. HUESTIS,
Springfield, Mass.

* * *


NOTE-RESISTANCE WIRES RUN IN PARALLEL AND SO SHOULD NOT BE INSULATED FROM HOLDER AT ANY POINT.
To 6 VOLT CURRENT
FIBER WASHERS
BINDING POST
COPPER HOLDER
RESISTANCE WIRE
DETAIL OF ASSEMBLY
INTAKE HEATER COMPLETE

Mr. Huestis' arrangement for making the motor start

Questions for the February Issue

1. What should be the relation between the size of the boat and the number of cylinders? Given a boat of any size, how would you determine the number of cylinders the motor should have?
Suggested by Murray Fahnestock, N. S. Pittsburgh, Pa.

2. Describe and illustrate a satisfactory method of converting a make and break engine into a jump spark, and discuss the benefits, if any, to be derived by this conversion.
Suggested by Howard D. Fisher, West Hoboken, N. J.

3. Describe and illustrate a practical method of using the power of the main engine to raise the anchors of a cruiser of not over forty-foot length.
Suggested by W. Mack Angas, Boston, Mass.

RULES FOR THE CONTEST

Answer to these questions, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (*a*) in our hands on or before **December 20.** (*b*) about 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the **20th of December.**

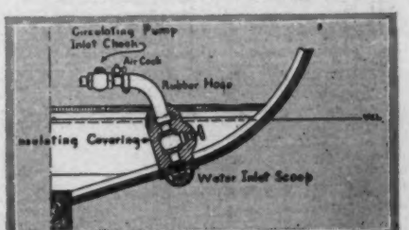
The prizes are: For each of the best *answers* to the questions above *any article* advertised in the *current* issue of MoToR BoatinG, of which the advertised price does not exceed $25, or a credit of $25 on *any article* advertised in the *current issue* of MoToR BoatinG, which sells for more than that amount. (*There are three prizes—one for each question—and a contestant need send in an answer to but one if he does not care to answer all three.*)

For each of the questions selected for use in the next contest, *any article* advertised in *this issue* of MoToR BoatinG, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in *this issue* of MoToR BoatinG which sells for more than that amount.

Prime With High-Grade Gasoline

THE troubles usually occurring when a motor boat is used in cold weather are hard starting, due to the failure of the low grade gasoline now sold to vaporize at low temperatures, freezing of the water inlet pipe and finally bursting of the water jackets, circulating pump and water connections due to freezing in these parts. This latter difficulty is so easily overcome that it is hardly worth mentioning. Two carefully located drain cocks, one in the lowest part of the cooling system above the pump outlet check, and one in the circulating pump itself, will drain the engine of all water and thus prevent damage.

The difficulty of hard starting is not so easily solved. A good modern carbureter will, if fitted with a warm air intake or a hot water jacket, operate perfectly satisfactorily on modern low grades of gasoline at low tempera-



A device to prevent freezing in the intake pipe, suggested by Mr. Angas

When you send in your answers you must state what you will take for a prize should you win one

tures, and by priming or using a "strangler" on the carbureter a motor may be started on these fuels in moderately cold weather, but it is almost impossible to start an engine on such fuels during a hard freeze. In order to accomplish this the cylinders should be primed with some high-grade (76-80 Baumé scale) gasoline and a little of this gasoline squirted into the carburetor inlet with the priming can; then, if the ignition system is working all right, there should be no trouble in getting the necessary first few explosions. In places where gasoline of such low specific gravity cannot be obtained, a good substitute may be made by adding ether to ordinary gasoline until its specific gravity has been reduced to between 76 and 80 Baumé. The specific gravity can be best determined by the use of a hydrometer which reads in degrees of the Baumé scale. The higher the "degree" on this scale the lower is the specific gravity of the liquid.

It is very difficult to absolutely prevent freezing in the water intake in extremely cold weather, but the chances of such freezing will be minimized if no pipes containing water are directly exposed to the atmosphere, and no water is left standing in a metal pipe any part of whose length is exposed to the cold. The accompanying sketch shows one way in which a water inlet that meets these requirements may be built. If, after the engine is drained the "air cock" be opened, the water will fall in the intake to the level of the water line, and with the water at this level freezing is unlikely, as heat is readily conducted by the bronze piping from the comparatively warm water at the outer end of the pipe to the water in the pipe where freezing is apt to occur. The heavy bagging and rubber hose prevent the escape of much of this heat to the atmosphere and thus keep the inlet clear of ice in weather which would ordinarily cause more or less serious trouble of this kind. In case the pump is below the water line the air cock should be located in a high point of the inlet pipe which is specially arranged to be above the water line. If freezing *does* occur in such an outfit, thawing may be accomplished by disconnecting the hose from the pump intake and running a small rubber tube down the hose until the ice is met; hot water poured down the tube will soon get the better of the ice. W. MACK ANGAS, Boston, Mass.

Building a Folding Dinghy

A Practical and Reliable Small Boat Which Can Be Conveniently Carried on Deck—Designs Which Are Utilized for Other Purposes When Not Acting as a Tender

THE PRIZE CONTEST—Answers to the Second Question in the October Issue

THERE are various ways of building a folding boat. Waterproofed canvas and khaki apparently enter into the construction of most of the methods of building small craft of this type. All wooden construction might be utilized by having the craft built in sections, each one smaller than the other, so as to fit within one another, after the fashion of children's blocks, these sections to clamp together, thus forming a many-divided solid boat. The canvas-covered type, though, has the greatest number of advantages and is simpler to construct.

A scow boat was determined upon on account of its greater carrying capacity for equal overall dimensions and its simplicity to create. The sides are straight and the bottom has but little rocker. A scow tows well and makes an all-around serviceable dinghy.

Fig. 1 is a sectional elevation through A-B

A Scow Tender

(The Prize Winning Answer)

(Fig. 2). It shows the general shape and construction, but no overall dimensions, as they must be decided upon by the builder. Each side frame is built of ⅞x3-inch spruce or cedar cut to approximately the shape shown. Notches are cut along the lower member or chine and on each end to receive and hold in place the removable bottom frames and the bow and stern boards. A clamp is screwed in place extending the full length of of each side of ⅞x1-inch spruce, forming a shelf upon which the seats are supported.

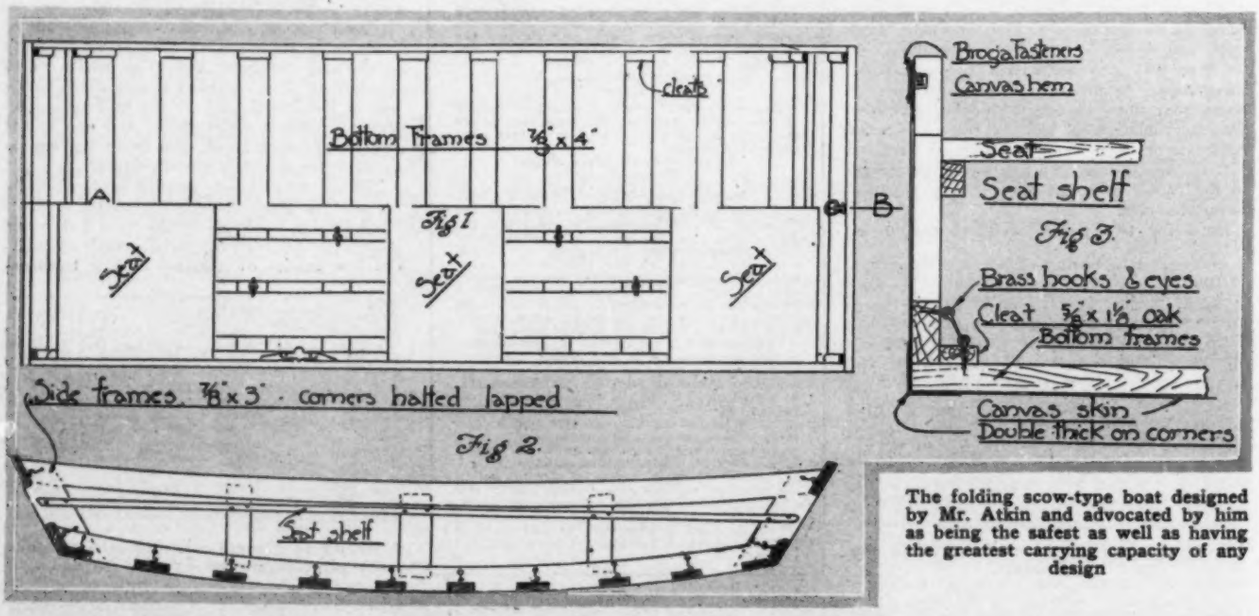
The seats are made of ⅞-inch cedar or spruce of proper length and width to fit the boat and located as shown in Fig. 2. The bottom frames are ¾ x 4-inch spruce or cedar, spaced 12 inches center to center, and fit the notches cut into the chine. Fig. 3 shows how they are held in place. The bow and stern boards are treated in a similar way.

Waterproof canvas or khaki cut and sewn to tightly fit this frame, having all corners double thickness and edges hemmed, forms the skin. Broga curtain fasteners spaced about 6 inches apart along the top edges will hold the canvas cover securely in place.

Wooden blocks for row lock sockets and towing ring bolt may be fastened to the top of the frame wherever convenient. Paint or varnish the wooden frames, but not the canvas, as painted canvas cracks when folded.

Lay light floor boards inside, for, without these, a misstep might rip a hole in the covering between the bottom frames. These may be held in place by metal turned buttons made for the purpose.

WM. ATKIN, Huntington, L. I.



The folding scow-type boat designed by Mr. Atkin and advocated by him as being the safest as well as having the greatest carrying capacity of any design

A Double-Ended Model

IT is not probable that a folding or collapsible yacht tender can ever be constructed that will seriously compete in service with a regularly framed and planked dinghy. However, for long distance racing and extended outside cruising a folding boat may be much more conveniently stowed on deck than the cumbersome dink, and would probably be allowed under the rules as a possible life-saver.

Since the canoe or double-end model seems to adapt itself most easily to folding requirements, we must allow a little extra length to give the necessary capacity to carry the crew of three or four, as the canoe model is a trifle deficient in displacement. Eleven feet over all by 40-inch beam should make a good lifeboat, while a depth of 15 inches will be quite sufficient to give ample freeboard when fully loaded. An artistic sheer is not within the possibilities in folding craft.

The backbone of the boat is a wooden bottom one inch thick, made up of two thicknesses of white pine with muslin laid in white lead between, and the whole clinch-nailed together. The lower thickness will be run fore and aft in three wide planks and the upper thickness cross planked with close joints.

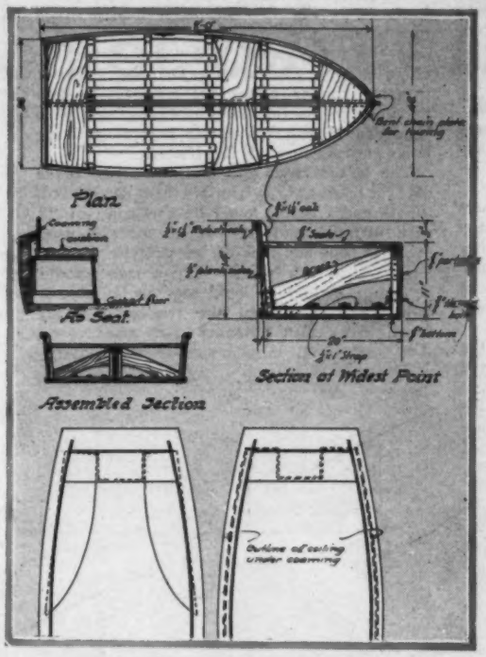
This will provide a water-tight substantial bottom for the boat which will stand beaching or hob nailed shoes without damage. A stout gunwale of oak is next in order, 1¾x1¼ inches, sprung to the shape required, the width being 1¾ inches. At bow and stern this gunwale will be screwed securely to blocks of oak shaped to carry out the lines of the boat, and amply strong to hold the pieces rigidly in position without additional bracing. The sides of the boat will be made of two thicknesses of No. 10 duck reinforced at bow and stern and treated with boiled linseed oil to make it waterproof. This covering will be closely tacked round the edge of the bottom board with copper tacks, the joint being liberally white-leaded and protected with an oak bang strip screwed in place. The upper edge of the canvas will be fastened to the gunwale in a similar manner and covered with a similar oak strip. When unsupported the sides of the boat collapse and the gunwale lies on the level of the bottom, encircling it and with the canvas sides lying in wrinkles between them.

A folding frame is now to be made to support the gunwale at its proper height and to provide supports for the three removable thwarts. A keelson of oak measuring 2 inches in height and 1½ inches in thickness will run the whole length of the boat inside, having stem and stern posts erected upon it and framed into it, braced by suitable knees. Both stem and stern posts have tenons at the top to fit into mortises in the blocks at the ends of the gunwales. Midway of the keelson will be hinged two half-frames which will swing out athwartships and have tenons at the top which fit into mortises cut in the under side of the gunwale. Two more sets of similar frames are also fastened to the keelson with hinges, one pair forward and one pair aft, having similar tenons at the top and supporting the gunwale at these points.

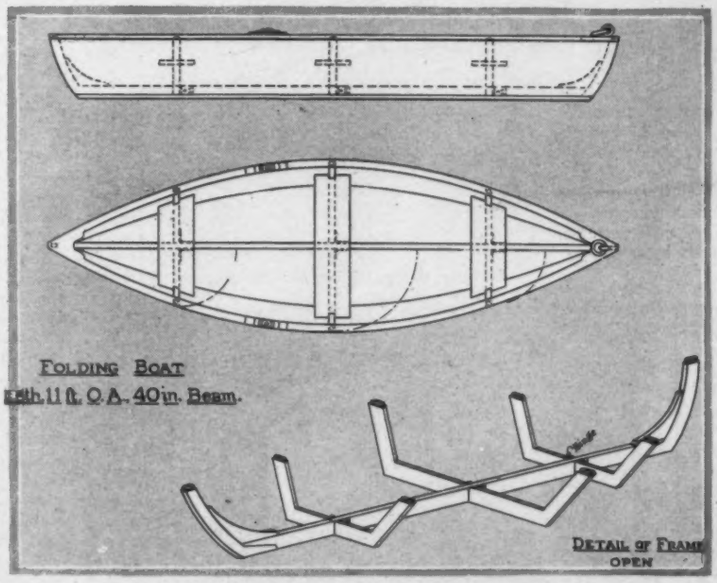
Three thwarts of pine ⅞ inch in thickness and 8 inches wide are notched out to fit over these frames and are forced down into place, acting as stretchers to hold the frames extended rigidly. A pair of row locks are screwed to the gunwale in the usual manner, the oarsman using the middle thwart.

This boat is neither beautiful nor speedy, but would be seaworthy and if not abused should be fairly durable. The folding feature provides for the entire outfit lying flat upon the cabin top with nothing projecting to interfere with the view or to cause windage. It may be erected ready for use in three minutes.

ALLAN O. GOOLD, Portland, Me.



Mr. Kelley utilizes his tender as a cockpit seat as well



Mr. Goold recommends the double-ender

Makes Use of This Dinghy When Stowed

THE cockpit of a small amateur-built cruiser was laid out to accommodate a sectional tender, the idea being to use the tender as side seats.

This tender was not a box-like affair but quite a shipshape, respectable looking boat, with a partition running down the middle looking somewhat like a centerboard box.

The illustrations show how the two sections are assembled into a boat and also when turned upside down how the after ends slip under the stern seat, which was made just high enough to allow this—the height being 14 inches, just a comfortable seat height. Cushions laid onto the sections add greatly to the appearance and comfort. The tender is varnished bright, and harmonizes with the cockpit finish. Considerable storage space is used under the two valves of the dinghy.

The partitions running fore and aft add considerable to the stiffness and each part, weighing only about 100 pounds, can be easily handled by one man, put overboard one at a time, and, being watertight, can, if desired, easily be assembled from the inside after they are in the water.

Chain plates at the lower end of the stern are used for a towing rope and also to fasten each end to the cockpit side when used as seats.

The sections are screwed together by ⅜-inch thumb screws, the ⅛x1-inch strip acting as a washer in one section, and, tapped out in the other, serves as a nut for the bolt. These strips run clear across the floor and are turned up at each end, considerably strengthening the frame. Five straps and clamp screws are used along the bottom and three on the top edges of the partitions.

A detailed description of the construction is not necessary—the planking, etc., is clear cypress and the frames, braces, etc., of oak, all securely riveted together, caulked and varnished. There are three bottom planks to each section, running fore and aft.

The dimensions given may have to be altered to fit into another boat.

L. R. KELLEY, Philadelphia, Pa.

Stern Folds Over Bow

THE boat described below, while not folding up completely, will occupy half the space on deck that a regular tender would. The punt type of tender was chosen as being easier to build in this kind of construction, in that there is not much bend to the side planks and, furthermore, the two halves can be nested together.

However, instead of nesting the two halves, the stern end can be folded up over the bow section, thus affording some protection to any duffle or provisions that might be stowed inside.

This boat is built in two watertight sections, which are hinged together at the top of the midship transoms and held together at the bottom by two full-length jointed rods, these rods being drawn up tight at the stern by means of wing nuts screwing down over straps fastened to the stern transom.

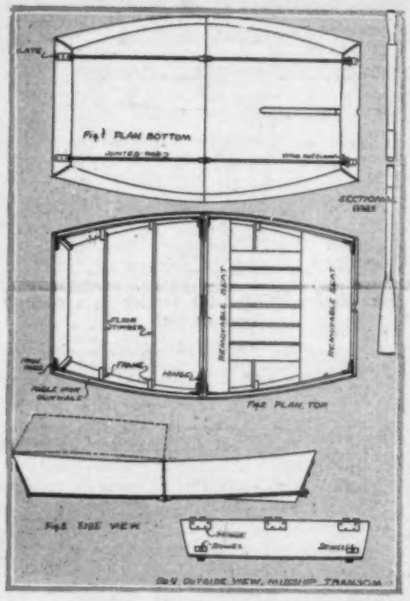
No lines or dimensions are given in the plans, the main idea being to show the method of construction. The regular skiff construction is used; the side planks should be steamed and bent to shape before fastening in place on account of the short length of side. The middle transoms should preferably be of oak and very securely reinforced and fastened, for a good deal of strain will come on them. If it is desired to nest the two sections together, inside space can be saved by making the gunwales of galvanized angle iron bent to shape and with the horizontal side of the angle extending over the tops of the frames to the planking, as shown in Fig. 10. If it is intended that the two sections only fold together, it would be best to make the gunwales of oak.

The corners should be reinforced by iron knees as shown. The hinge holding the two sections together are three in number and should be of galvanized iron, or preferably bronze, and strong and heavy. If the sections are to be nested, the pins in the hinges should be removable, and to prevent their being lost some such arrangement as shown in Fig. 9 should be used; the pin runs against the stop before it is through the last bearing in the hinge and so cannot come entirely out. The construction of this boat was intended to be such that there would be no small loose parts to be lost and so prevent its being put together.

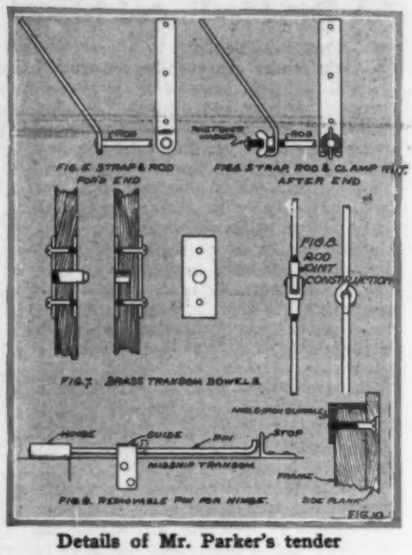
Two brass dowel pins are put near the bottom of one of the middle transoms to engage in holes in the opposite transom and so prevent the two sections from shifting. The construction of these dowel pins and plates is shown in Fig. 7. The pin is held between two brass plates and screwed into the inside one, the plates being held together by machine screws as shown. On the opposite transom similar plates are placed, the two outside ones having holes to engage the pins. Care should be taken not to bore these large holes entirely through the transom.

The bottom rods and plates are best made of bronze, for, if galvanized iron were used, the threads on the ends of the rods would rust. Bronze and iron should not be used together on account of electrolytic action, especially in salt water. These rods should be strong enough to hold together if a man should jump off into the tender; a habit which many men possess.

H. H. Parker, Oakland, Cal.



Dinghy designed by Mr. Parker



Details of Mr. Parker's tender

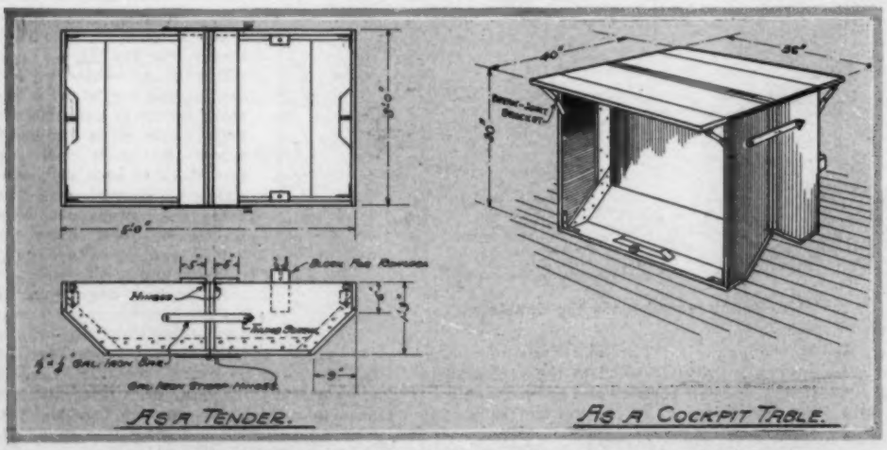
Both Tender and Table

THE tender, carried in the cockpit of a small cruiser, is a cumbersome thing unless it can be made to serve some other purpose while aboard ship, such as is illustrated in the accompanying drawing.

Here, the tender of the scow type is built in two sections, hinged together at the bottom with two heavy strap hinges so that it may be folded together and made into a convenient cockpit or even a cabin table, as shown on the right-hand side of the drawing. The construction of the tender is plainly shown in the drawing and needs no explanation further than to say that it can be made of ⅞-inch thick white pine, cedar or cypress, and should be well fastened with galvanized iron screws. All joints should be well caulked.

To hold the boat rigid while being used as a tender a strap of galvanized iron ⅛ inch thick by 1½ inches wide is bolted across the two halves of the boat as shown in the illustration. One end should be a through bolt and nut to act as a pivot joint and the other should be a thumb-screw bolt, so that the bar may be readily unshipped. If the bolts which fasten this bar are placed the same distance from the bottom of the tender as they are from the middle joint of the boat, then they will also serve to hold together the table, when it is desired to use it as such—a glance at the drawing will make this point clear. The seat is made in two sections, one fastened by means of butt hinges to each half of the boat, so that it may be folded up and held, by means of break-joint brackets, to form an extension leaf on each side of the table, thus making a table top 36x40 inches. When the tender is used these seat boards rest on the sides or gunwales and form a firm support for the oarsman. The row locks should be set in blocks fastened to the gunwales.

W. Elmer Motz,
Philadelphia, Pa.



A combination tender and cockpit table suggested by Mr. Motz

AMERICAN MARINE MOTORS · FOR 1916 ·

The Relation of Buyer and Builder

The Spirit of Confidence and Co-operation Which is Necessary for the Good of All— The Aims of the Reputable Builder and How These Can Be Accomplished

By W. L. Fay
President Fay & Bowen Engine Co.

WITH the advance of "safe and sane" business methods, the old caution, "let the buyer beware," is becoming obsolete. However, the relations between the builders of marine engines and the buyers thereof will still bear improvement, not because the buyer need "beware," but because both parties, builder and buyer alike, often fail to arrive at each other's viewpoint.

During the past few years, there has been a marked improvement not only in the general design of marine motors, but also in certain of their requirements not necessarily a part of their design, but esential to their operation. This is especially true of electric ignition, the high tension type having been almost revolutionized within a comparatively recent period. Methods of feeding the gasoline have also been improved, so that it is now possible to arrange the deck plan of a boat as may seem best to get proper trim and highest speed, it no longer being necessary to so locate the fuel tank as to feed by gravity only. The tremendous vogue of the automobile and the improvements in motor car engines have also been great educators, both to the public generally and to the builders of marine engines as well.

Mr. Fay in his office

Mr. and Mrs. Hudson Maxim in their Fay & Bowen runabout which is powered with a Fay & Bowen motor

With all these changes there have come some dangers to both buyer and builder. To the buyer the danger is that his knowledge may not go far enough and to the builder that his knowledge may go too far.

Every sincere and intelligent builder of marine engines is constantly placing himself in the position of the buyer and asking "How will this change, this apparent improvement, this new attachment, actually work out in service in the hands of the client?" The builder is constantly studying each new device offered and is spending thousands of dollars in testing not only these devices, but every change or addition made to his machine. Many devices, widely advertised, do not prove themselves, in the builder's opinion, to be what is claimed for them, and the same is true of certain changes in design. Many are good if operated understandingly, but require that the buyer should study them and keep them in proper condition if the right results are to accrue. In his desire to be up-to-date and to please the trade, the builder naturally wishes to make such changes and adopt such devices as seem attractive and will increase sales. Yet the builder must of necessity know far more of the real value of such changes and devices than the average buyer. And if the motor is to give the long life and continued satisfaction which the buyer demands, the builder may often find himself in a quandary whether or not to adopt certain features and incorporate them in his product. If over-cautious, his knowledge may, as we have said, go too far and prevent him from adopting certain features which the buyer is inclined to demand as a condition of purchase. If the builder is too anxious to adopt every change or improvement he may in the long run be severely criticised by that very buyer, for those very features.

The buyer may, however, in the present stage of the motor industry, feel very sure that the builder is keenly alive to all improvements and is spending large sums annually to learn their real value. Also, the buyer should bear in mind that the builder tries constantly to place himself in his (the buyer's) position, and is asking himself not only whether the real value of changes and devices will warrant their adoption from the mechanical standpoint, but also whether those changes

(*Continued on page* 88)

MOTORS AND MANUFACTURERS

Alphabetical List of the Makes of Motors Included in the Classified Table, With the Names and Addresses of Their Manufacturers

Name of Motor	Manufacturer and Address
Able	Able Engine Co., N. Y. City.
Acadia	Acadia Gas Engine Co., Bridgewater, N. S.
Achilles	Atkin Wheeler Co., Huntington, N. Y.
Admiral	Affiliated Mfrs. Co., Milwaukee, Wis.
Aerothrust	Aerothrust Engine Co., Chicago, Ill.
Alexander & Cox	Alexander & Cox Co., Chicago, Ill.
American	American Engine Co., Detroit, Mich.
American Boy	Bruns, Kimball & Co., Inc., N. Y. City.
Amphion	A. J. Machek & Co., Milwaukee, Wis.
Anderson	Anderson Engine Co., Chicago, Ill.
Aristocrat	Herrmann Engineering Co., Detroit, Mich.
Atlas	Atlas Gas Engine Co., Oakland, Cal.
Automatic	Automatic Machine Co., Bridgeport, Conn.
Barber	Barber Bros., Syracuse, N. Y.
Barker	C. L. Barker, Norwalk, Conn.
Barrie	Canada Producer & Gas Engine Co., Barrie, Ont.
Beilfuss	Brown Machine & Engine Co., Lansing, Mich.
Belle Isle	Concrete Form & Engine Co., Detroit, Mich.
Blount	Blount Engineering Co., Boston, Mass.
Brennan	Brennan Motor Mfg. Co., Syracuse, N. Y.
Bridgeport	Bridgeport Motor Co., Bridgeport, Conn.
Bud-E	Carlyle Johnson Machine Co., Manchester, Conn.
Buffalo	Buffalo Gasoline Motor Co., Buffalo, N. Y.
Cady	C. N. Cady, Canastota, N. Y.
Caille	Caille Perfection Motor Co., Detroit, Mich.
Campbell	Campbell Motor Mfg. Co., Minneapolis, Minn.
Capital	Flield Bros. Co., Augusta, Me.
Capitol	Auto Engine Works, St. Paul, Minn.
Carl	Carl Engine Works, Philadelphia, Pa.
Chesapeake	Chesapeake Engine Co., Oxford, Md.
Clay	Clay Engine Co., Cleveland, O.
Clifton	Clifton Motor Works, Cincinnati, O.
Corliss	Corliss Gas Engine Co., San Francisco, Cal.
Curtiss	Curtiss Motor Co., Hammondsport, N. Y.
Detroit	Detroit Engine Works, Detroit, Mich.
Dice	Dice Machine Co., Anderson, Ind.
Doman	H. C. Doman Co., Oshkosh, Wis.
Eagle	Standard Co., Torrington, Conn.
Elco	Elco Co., Bayonne, N. J.
Elk	Elk Motor Co., Muscatine, Ia.
Erd	Erd Motor Co., Saginaw, Mich.
Essex	Essex Engine Co., Lynn, Mass.
Essex (Canadian)	James Fleming, St. John, N. B., Canada.
Evansville	Evansville Gas Engine Works, Evansville, Ind.
Evinrude	Evinrude Motor Co., Milwaukee, Wis.
Fadum	Frederick Fadum, Baltimore, Md.
Fairbanks-Morse	Fairbanks, Morse & Co., Chicago, Ill.
Fay & Bowen	Fay & Bowen Engine Co., Geneva, N. Y.
Ferro	Ferro Machine & Foundry Co., Cleveland, O.
Fisherman	Loane-Traske Engineering Co., Baltimore, Md.
Foreman	Foreman Motor & Machine Co., Toronto, Canada.
Frisbie	Frisbie Motor Co., Middletown, Conn.
Frisco Standard	Standard Gas Engine Co., San Francisco, Cal.
Fulton	Fulton Mfg. Co., Erie, Pa.
Gray	Gray Motor Co., Detroit, Mich.
Grizzly Bear	Parrott & Harter Engine Works, Olympia, Wash.
Guarantee	Guarantee Motor Co., Hamilton, Ont.
Hall	Hall Gas Engine Co., Inc., Philadelphia, Pa.
Harris	Harris Engine Co., Wilmington, Del.
Hegeman	Hegeman Machine Works, Grand Rapids, Mich.
Herschell-Spillman	Herschell Spillman Co., N. Tonawanda, N. Y.
Hettinger	Hettinger Engine Co., Bridgeton, N. J.
Holliday	Kuehl Bros. Engineering Works, Chicago, Ill.
Holmes	Holmes Motor Co., Inc., West Mystic, Conn.
Holmes-Howard	Holmes-Howard Motor Co., Detroit, Mich.
Hubbard	Hubbard Motor Co., Inc., Middletown, Conn.
Hunter	Everett Hunter Boat Co., McHenry, Ill.
Imperial	Bruce Stewart Co., Ltd., Charlottetown, P. E. I.
Johnson	Johnson Bros. Motor Co., Terre Haute, Ind.
Joymotor	Joy Engineering Co., Chicago, Ill.
Kahlenberg	Kahlenberg Bros. Co., Two Rivers, Wis.
Kermath	Kermath Mfg. Co., Detroit, Mich.
Knox	Camden Anchor-Rockland Machine Co., Camden, Me.
Koban	Koban Mfg. Co., Milwaukee, Wis.
L-A	Lockwood-Ash Motor Co., Inc., Jackson, Mich.
Lamb	Lamb Engine Co., Clinton, Ia.
Lathrop	J. W. Lathrop Co., Mystic, Conn.
Lawley	Geo. W. Lawley & Son, Corp., Neponset, Mass.
Leary	Leary Gasoline Engine Co., Rochester, N. Y.
Leech	Leech Motor Co., Lima, O.
Leighton	H. J. Leighton, Syracuse, N. Y.
Lisk	Geo. A. Lisk, Detroit, Mich.
Loew-Victor	Loew-Victor Engine Co., Chicago, Ill.
Matthews	Matthews Boat Co., Port Clinton, O.
Maximoter	Maximotor Co., Detroit, Mich.
Mercury	Mercury Motor Co., N. Y. City.
Mianus	Mianus Motor Works, Stamford, Conn.
Michigan	Michigan Wheel Co., Grand Rapids, Mich.
Miller	Miller Gas & Vacuum Engine Co., Chicago, Ill.
Missouri	Missouri Engine Co., St. Louis, Mo.
Mohawk	S-R Mfg. Co., Schenectady, N. Y.
Monarch	Grand Rapids Gas Engine Co., Grand Rapids, Mich.
Monitor	Monitor Boat & Engine Co., Newark, N. J.
Morristown	Morristown Boat & Engine Works, Morristown, N. Y.
Morton	Morton Motor Co., Detroit, Mich.
Motorgo	Sears, Roebuck & Co., Chicago, Ill.
Murray & Tregurtha	Murray & Tregurtha Co., South Boston, Mass.
Niagara	Niagara Motor & Mfg. Co., Inc., Dunkirk, N. Y.
Nieland	J. E. Nieland, San Francisco, Cal.
Nlseco	New London Ship & Engine Co., Groton, Conn.
No-Ro	No-Ro Motor Co., Boston, Mass.
Northwestern	Northwestern Motor Co., Eau Claire, Wis.
Ontario	A. E. Olmstead, Pulaski, N. Y.
Oriole	Page Engineering Co., Baltimore, Md.
Palmer	Palmer Bros., Cos Cob, Conn.
Parsons	Parsons Motor Co., Ltd., Southampton, Eng.
Peerless	Peerless Marine Motor Co., Buffalo, N. Y.
Penrose	Penrose Motor, Inc., Woodbury, N. J.
Philadelphia	Central Machine Co., Philadelphia, Pa.
Pierce-Budd	Pierce-Budd Co., Bay City, Mich.
Pilot	Trump Bros. Machine Co., Wilmington, Del.
Ralaco	S. M. Jones Co., Toledo, O.
Red Wing and Red Wing Thorobred	Red Wing Motor Co., Red Wing, Minn.
Regal	Regal Gasoline Engine Co., Coldwater, Mich.
Reliable	Reliable Engine Co., Portsmouth, O.
Reliance	H. L. F. Trebert Engine Works, Rochester, N. Y.
Rice	Rice Brothers Co., East Boothbay, Me.
Roberts	Roberts Motor Mfg. Co., Sandusky, O.
Robert's Motor	Robert's Motor Works, Lachine, Quebec.
St. Lawrence	St. Lawrence Engine Co., Ltd., Brockville, Ont.
S-H-M	Schofield-Holden Machine Co., Ltd., Toronto, Canada.
Schneider	A. Schneider Engineering Works, San Francisco, Cal.
Scripps	Scripps Motor Co., Detroit, Mich.
Sieverkropp	Sieverkropp Engine Co., Racine, Wis.
Simplex	Simplex Engine Co., Detroit, Mich.
Smalley	Smalley General Co., Bay City, Mich.
Southwark	Southwark Foundry & Machine Co., Philadelphia, Pa.
Speedway	Gas Engine & Power Co., and Charles L. Seabury & Co., Cons., N. Y. City.
Spinaway	Spinaway Boat Motor Co., Freeport, Ill.
Standard	Standard Motor Construction Co., Jersey City, N. J.
Stanley	Stanley Co., Salem, Mass.
Sterling	Sterling Engine Co., Buffalo, N. Y.
Sterling (Chicago)	Sterling Engine Co., Chicago, Ill.
Stork	Defoe Boat & Motor Works, Bay City, Mich.
Strang	Strang Engine Co., Harvey, Ill.
Strelmotor	Strelinger Marine Engine Co., Detroit, Mich.
Sturtevant	B. F. Sturtevant Co., Boston, Mass.
Sweet	Sweet Mfg. Co., Detroit, Mich.
Thomas	Thomas Bros. Aeroplane Co., Ithaca, N. Y.
Toledo	Universal Machine Co., Bowling Green, O.
Toppan	Toppan Boat Mfg. Co., Boston, Mass.
20th Century	New York Yacht, Launch & Eng. Co., N. Y. City.
Tygard	Tygard Engine Corp., Plainfield, N. J.
Union	Union Gas Engine Co., San Francisco, Cal.
Universal	Universal Motor Co., Oshkosh, Wis.
Valveless	Nichols & Wright Motor Co., Buffalo, N. Y.
Van Blerck	Van Blerck Motor Co., Monroe, Mich.
Vanguard	Geo. E. Belcher, Stoughton, Mass.
Vim	Vim Motor Co., Sandusky, O.
Vulcan	Vulcan Engine Works, Philadelphia, Pa.
Waterman	Waterman Motor Co., Detroit, Mich.
Watertown	Gillespie Boynton Co., Inc., Paterson, N. J.
Watkins	Watkins Motor Co., Cincinnati, O.
Winton	Winton Engine Works, Cleveland, O.
Wisconsin	Wisconsin Machinery & Mfg. Co., Milwaukee, Wis.
Wisconsin (Consistent)	Wisconsin Motor Mfg. Co., Milwaukee, Wis.
Wolverine	Wolverine Motor Works, Bridgeport, Conn.
Wood & Chute	Wood & Chute Machine Co., Greenport, N. Y.
Yale	Heaps Engineering Co., Ltd., New Westminster, B. C.

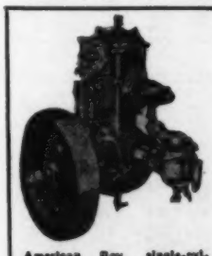
SINGLE-CYLINDER MOTORS
TWO CYCLE

On the following pages will be found the most complete and best arranged list of the specifications of American Marine motors ever published. This table includes practically every model of motor manufactured in this country to-day, and is exclusively a MoToR BoatinG feature. It will be preserved by thousands of motor boatmen, enthusiasts, and even engine manufacturers for future reference.

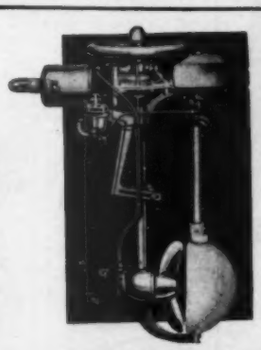
The method of arranging and classifying the motors is very simple and will be apparent to every one upon inspection. First of all the models are divided into a number of groups, depending upon the number of cylinders and cycle. Then each group is arranged in the order of the manufacturers' horsepower rating, beginning with the model of the lowest power. Complete data as to bore and stroke, maximum revolutions per minute, weight and type of ignition is included.—EDITOR.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
½	Sieverkropp	2 x 2	1,000	45	..	...
1¼	Barker	3⅛x 3¼	600	100	..	M.&B.
1½	Alexander & Cox	3⅛x 3	600	...	..	J.S.
1½	Cady	3 x 2½	800	45*	..	J.S.
1½	Eagle	3 x 3	600	128	..	M.&B.
1½	Hubbard	3⅛x 3¼	600	164	2	M.&B.
2	American	3 x 3½	800	100*	..	J.S.
2	American Boy	3 x 3	600	90*	..	M.&B.B.
2	Caille	3 x 3½	700	125	3	J.S.B.
2	Caille	2½x 2½	800	40	3	J.S.M.
2	Northwestern	3 x 3	800	100*	..	Batt.
2	Palmer	3¾x 3½	500	135*	3	M.&B.
2	Strelmotor	3 x 2½	800	160	..	J.S.
2	Toppan	3 x 3¾	700	150	..	...
2½	American	3¼x 3½	800	140*	..	J.S.
2½	Barber	3¼x 3¼	750	75*	3	J.S.B.
2½	Barker	4⅛x 4½	550	220	..	M.&B.
2½	Belle Isle	3¼x 2¾	730	130	..	J.S.
2½	Bridgeport	3¾x 5	500	170	3	...
2½	Caille	3¼x 3½	700	135	3	J.S.B.
2½	Detroit	3 x 3½	800	110*	..	J.S.B.
2½	Eagle	3¼x 4	575	213	..	M.&B.
2½	Hubbard	3¼x 4	600	194	2	M.&B.
2½	L-A	3½x 3½	750	190*	..	J.S.
2½	Motorgo	3¼x 3½	750	100*	2	Batt.
2½	Palmer	3¾x 3½	700	125*	3	J.S.
2½	Schneider	3½x 3	850	125	..	...
2½	Valveless	3 x 3	720	71	..	J.S.
3½	Waterman	2¾x 3	800	54	3	J.S.
3	Acadia	4 x 3½	600	350	2	M.& B.
3	Amphion	2½x 3	1,000	...	..	J.S.
3	Automatic	4¼x 4	500	205*	..	...
3	Cady	3½x 3¼	700	90*	..	J.S.
3	Essex	3¼x 4¾	500	175*	..	M.&B.
3	Essex (Canadian)	3½x 4	600	146*	..	M.&B.
3	Ferro	3½x 3¼	900	150	3	J.S.M.
3	Gray	3½x 3½	1,000	114	3	J.S.
3	Guarantee	3½x 3½	700	150	..	Batt.
3	Hegeman	3½x 3¾	700	...	..	Batt.
3	Hubbard	4 x 4¾	600	250	2	M.&B.
3	Imperial	3¼x 3	750	120	..	J.S.
3	Kahlenberg	3½x 3½	600	125*	..	M.&B.
3	Knox	4 x 4	...	250	..	J.S.
3	Lathrop	4 x 4	500	150*	2	M.&B.
3	Mianus	4 x 4	550	225	2	M.&B.
3	Ontario	3½x 3½	900	125	..	J.S.B.
3	Pilot	3½x 4	800	270	..	...
3	Red Wing	3½x 3½	600	125	2	J.S.B.
3	Roberts	3½x 3	1,000	110	..	J.S.
3	Rice	4 x 4	550	145	..	M.&B.
3	St. Law'nce	3¼x 3½	800	100	..	J.S.
3	Stanley	4 x 3½	800	210	..	M.&B.
3	Sterling (Chicago)	4 x 3½	800	135*	..	J.S.B.
3	Stork	3½x 3½	700	130*	..	J.S.M.
3	Toledo	3½x 3½	750	135*	..	J.S.M.
3	Toppan	3¾x 3½	700	200	..	...
3	Watkins	3 x 3	950	45*	3	J.S.B.
3	Wood & Chute	4 x 4	600	240	..	M.&B.
3½	Barrie	3½x 3¼	700	200	..	J.S.
3½	Capital	3½x 3½	900	135	..	...
3½	Eagle	3½x 3¾	900	123	3	J.S.
3½	Eagle	3¾x 4	650	255	..	J.S.
3½	Erd	3½x 3½	800	145	..	Batt.
3½	Mohawk	3½x 3¾	900	180	3	J.S.B.
3½	Palmer	4½x 4½	400	240*	2	M.&B.
3½	Palmer	4½x 4½	475	220*	3	M.&B.
3½	Valveless	3½x 3½	675	117	..	J.S.
4	Acadia	4 x 4	800	400	2	M.& B.
4	American	3½x 3½	800	170*	..	J.S.
4	Barber	4 x 4	600	165*	3	J.S.B.
4	Barker	4⅛x 5	550	220	..	M.&B.
4	Bridgeport	4½x 5	500	275	3	...
4	Cady	4½x 4	700	135*	..	J.S.
4	Caille	3½x 3½	700	150	3	J.S.B.
4	Chesapeake	4½x 5	550	200	..	M.&B.
4	Detroit	3¾x 3½	800	155*	..	J.S.B.
4	Ferro	3¾x 3½	800	186*	3	J.S.M.
4	Fulton	3¾x 4	650	650	3	Slf. Spkr.
4	Hegeman	4 x 3¾	700	...	..	Batt.
4	Hubbard	4½x 5	575	305	2	M.&B.
4	Imperial	4 x 3½	500	200	..	J.S.
4	Kahlenberg	4 x 4	550	160*	..	M.&B.
4	L-A	4 x 4	700	130*	..	J.S.
4	Lathrop	4½x 5	500	200*	2	J.S.
4	Motorgo	4 x 4	750	130*	2	Batt.
4	Northwestern	4 x 4½	700	215*	..	Batt.
4	Palmer	4½x 4½	650	210*	3	J.S.
4	Red Wing	4 x 4	700	160	3	J.S.B.
4	Rice	4 x 4	700	145	..	J.S.
4	Smalley	3½x 4	...	...	..	J.S.
4	St. Law'nce	3½x 4	800	110	..	J.S.
4	Stork	4 x 4	700	180*	..	J.S.M.
4	Wood & Chute	4½x 5	550	340	..	M.&B.
4½	Essex	4½x 5¼	500	267*	..	M.&B.
4½	Knox	4½x 4½	...	300	..	J.S.
4½	Schneider	3¾x 3¾	850	225	..	...
5	Acadia	4½x 5	850	400	2	J.S.
5	Acadia	4½x 5	500	525	2	M.& B.
5	Automatic	5¼x 5	500	340	..	...
5	Belle Isle	4¼x 3¾	700	190	..	J.S.
5	Bridgeport	5¼x 5½	500	310	3	...
5	Eagle	4½x 4	800	218	2	J.S.
5	Erd	4 x 4	800	195	..	Batt.
5	Essex (Canadian)	4½x 5¼	500	290*	..	M.&B.
5	Fay & Bowen	4½x 4½	550	330	2	M.&B.
5	Ferro	4¼x 4¼	900	243	3	J.S.M.
5	Fulton	3¾x 4	650	218	3	J.S.B.
5	Guarantee	4½x 4½	600	275	..	Batt.
5	Hubbard	5 x 5½	550	385	2	M.&B.
5	Imperial	4½x 4	500	275	..	J.S.
5	Lathrop	5½x 5	500	300*	2	M.&B.
5	Leary	3¾x 3¾	800	172	..	J.S.B.
5	Mianus	4¾x 5	500	330	2	M.&B.
5	Mohawk	4½x 4½	500	360	2	J.S.B.
5	Oriole	4½x 5	475	355	2	J.S.
5	Red Wing	4 x 4½	600	170	2	J.S.B.
5	Stanley	4½x 5	500	210	..	M.&B.
5	Strelmotor	4 x 3½	800	190	..	J.S.
5	Valveless	4 x 4	600	175	..	J.S.
5	Vanguard	4 x 4	700	238*	..	...
5	Vim	4 x 4	750	172	..	J.S.
5	Wisconsin	4 x 4	700	190	..	...
5	Wood & Chute	5 x 5	500	395	..	M.&B.
5½	Eagle	5 x 6	450	455	..	M.&B.
5½	Gray	4¼x 4¼	1,000	200	3	J.S.
5½	Knox	5 x 5¼	...	380	..	J.S.
5½	Palmer	5 x 6	450	325*	3	M.&B.
6	American	4¼x 4½	800	230*	..	J.S.
6	Barber	4¾x 4¾	600	345	3	J.S.B.
6	Chesapeake	5 x 5	575	500	..	M.&B.
6	Caille	4¾x 4½	650	300	3	J.S.B.
6	Capital	4½x 5½	600	325	..	J.S.
6	Detroit	4¼x 4½	800	285*	..	J.S.B.
6	Eagle	4½x 4	800	225	3	J.S.
6	Eagle	4½x 5	600	390	2	J.S.
6	Eagle	4½x 5	600	305	..	J.S.
6	Essex	5 x 6	450	365*	..	M.&B.
6	Fulton	4½x 5	600	366	..	Slf. Spkr.
6	Hegeman	4½x 4¼	700	...	..	Batt.
6	Hettinger	5½x 6	550	475	..	J.S.
6	Kahlenberg	5 x 5	600	400*	..	M.&B.
6	Lathrop	5½x 5	500	325*	2	M.&B.
6	Lathrop	5¼x 6½	400	500*	2	M.&B.
6	Mianus	4½x 5	700	330	2	J.S.
6	Mohawk	4½x 3¾	1,200	190	2&3	J.S.B.
6	Mohawk	4½x 4½	700	320	3	J.S.B.
6	Mohawk	4½x 4½	700	330	2	J.S.B.
6	Palmer	5 x 6	400	350*	2	J.S.
6	Palmer	5 x 6	625	325*	3	J.S.
6	Pilot	4¾x 5	600	420	..	...
6	Pierce-Budd	4 x 4	1,000	125*	..	J.S.B.

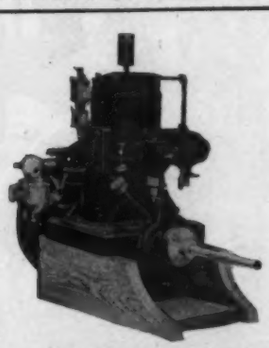
Explanation of initials: J.S.B. *or* J.S.M. = *jump-spark with battery or with magneto;* D.J.S. = *double jump-spark;* M.&B. = *make-and-break;* L, T, H, *or* H.&S. = *respectively, valves on same side, on opposite sides, in head and head and side;* * = *weight without reverse gear—all other weights include gear.*



American Boy, single-cylinder, 2 h.p., weight 90 pounds



Sweet outboard motor, rated at 4 h.p., at 1600 r.p.m.

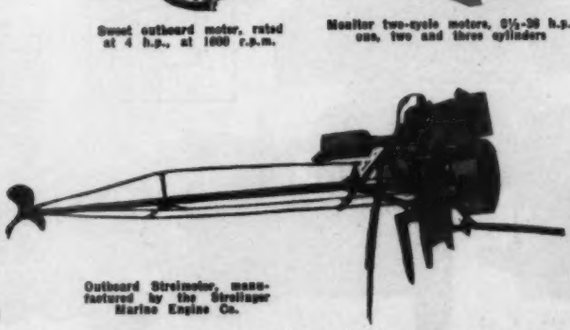


Neuiler two-cycle motors, 0½-30 h.p.: one, two and three cylinders

Three h.p. Aerothrust motor, turning 2000 r.p.m.

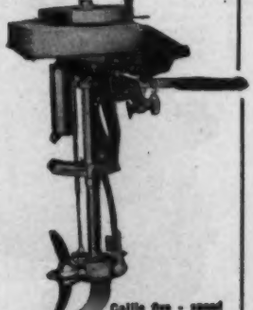
Evinrude outboard motors for row-boats and canoes, 2-3 h.p., magneto ignition

Kehan, three models, 3 h.p. at 800 r.p.m.



Outboard Strelmotor, manufactured by the Strellaper Marine Engine Co.

Bridgeport non-backfiring motor, 2½-30 h.p.



Caille five-speed outboard motor

OUTBOARD MOTORS

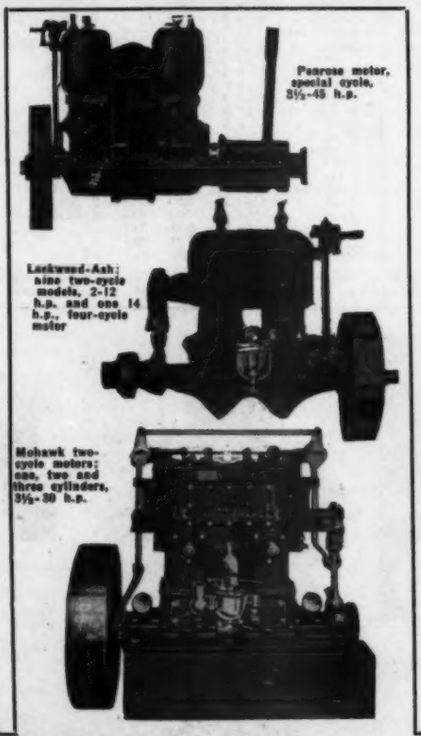
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
6	Red Wing	4½x 4½	700	210	3	J.S.B.
6	Smalley	4½x 4½	....	....	..	J.S.
6	Sterling (Chicago)	5 x 4½	800	210*	..	J.S.B.
6	Stork	4½x 4½	700	225*	..	J.S.M.
6	Toledo	4½x 4½	750	200*	..	J.S.
6	Toppan	4½x 4½	....	300	..	....
6	Vim	5 x 5	450	330	..	J.S.
6	Waterman	4 x 4	500	150	3	J.S.
6	Waterman	4 x 4	900	136	3	J.S.
6	Wood & Chute	5½x 6	500	470	..	M.&B.
6½	Acadia	5½x 5	800	550	2	M.& B.
6½	Barker	5½x 6½	450	350	..	M.&B.
6½	Essex (Canadian)	5 x 6	450	445*	..	M.&B.
7	Capital	4½x 4¼	900	190	..	....
7	Bridgeport	5½x 6	450	480	3	....
7	Eagle	6 x 6½	400	610	2	M.&B.
7	Fairbanks-Morse	5 x 4½	800	320	3	J.S.
7	Gray	4¾x 4	900	275	3	J.S.
7	Guarantee	5 x 5	500	400	..	Batt.
7	Hubbard	6 x 6½	450	557	2	M.&B.
7	Kahlenberg	5 x 6	400	500*	..	M.&B.
7	Lathrop	6 x 6½	375	575*	2	M.&B.
7	Missouri	5 x 6	300	675	..	Semi-Diesel
7	Mohawk	4½x 4½	900	323	2&3	J.S.B.
7	Northwest.	5 x 6	600	270*	..	Batt.
7	Ontario	5 x 5	450	300	..	J.S.B.
7	Oriole	5½x 6¼	325	525	2	J.S.
7	Smalley	4½x 5½	....	....	..	J.S.
7	Watertown	5 x 5	600	....	..	J.S.B.
7	Wisconsin	4½x 4½	700	215	..	....
7½	Fay & Bowen	5½x 5½	500	580	2	M.&B.
7½	Ferro	5 x 5	800	295	3	J.S.M.
7½	Knox	5½x 6¼	....	580	..	J.S.
7½	Mianus	5 x 6	450	500	2	M.&B.
7½	Monitor	5 x 5	600	260	..	....
7½	Stanley	5½x 6	425	440	..	M.&B.

Rated H.P.	Make	Bore and Stroke	R.P.M.	Wt.	Cylinders	Ignition
1¼	Motorgo	2½x 2½	850	62	1	J.S.M.
2	American	2½x 2½	900	62	1	J.S.M.
2	Caille	2½x 2½	800	57	1	J.S.M.
2	Evinrude	2½x 2½	700	60	1	J.S.M.
2	Evinrude	2½x 2½	700	67	1	J.S.M.
2	Joymotor	2½x 2½	900	57	1	J.S.
2	L-A	2½x 2½	800	65	1	J.S.M.
2	Michigan	2½x 2½	900	50	1	J.S.B.
2	Northwestern	2½x 2½	800	62	1	J.S.M.
2	Ontario	2½x 3	1,200	80	1	J.S.B.
2	Spinaway	2½x 2½	900	....	1	J.S.
2	Strelmotor	3 x 2½	800	160	1	J.S.
2	Sweet	2½x 2½	700	....	1	J.S.M.
2	Wisconsin	2½x 2½	700	....	1	J.S.M.
2½	Ferro	2½x 2½	850	....	1	J.S.M.
3	Admiral	2¾x 2¾	1,200	50	1	J.S.
3	Aerothrust	2½x 2¼	2,000	54	2	J.S.B.
3	Gray	3 x 2½	1,000	52	1	J.S.
3	Koban	2½x 2½	800	68	2	J.S.B.
3	Koban	2½x 2½	800	76½	2	J.S.B.
3	Waterman	2¾x 3	1,000	58	1	J.S.M.
3½	Caille	3 x 3½	700	132	1	J.S.M.
3½	Evinrude	3¼x 3	500	106	1	J.S.M.
3½	Wisconsin	3¼x 3¼	700	....	1	J.S.M.
4	Amphion	2½x 2½	1,100	78	2	J.S.M.
4	No-Ro (Four-Cycle)	2½x 2½	....	....	2	J.S.M.
4	Sweet	2¾x 3	1000	....	1	J.S.M.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
7½	Palmer	6 x 6	400	375*	3	M.&B.
7½	Wood & Chute	6 x 6	450	580	..	M.&B. or J.S.
8	Acadia	5½x 6	500	750	2	M.& B.
8	American	5¼x 5	600	380*	..	J.S.
8	Bridgeport	4½x 5	800	275	3	....
8	Caille	5¼x 5	600	400	3	J.S. or M.& B.
8	Essex	6 x 6	400	420*	..	M.&B.
8	Fulton	4½x 5	500	350	..	J.S.B.
8	Kahlenberg	5½x 6	400	550*	..	M.&B.
8	Lathrop	6½x 6½	350	600*	2	M.&B.
8	Stork	5 x 5	700	370	..	J.S.M.
8	Smalley	5½x 5½	....	....	2	J.S.
8½	Oriole	6¼x 6½	425	625	2	J.S.
9	Barber	5½x 5½	600	280	3	J.S.B.
9	Bridgeport	6½x 6½	400	600	3	....
9	Essex (Canadian)	6 x 6	450	515*	..	M.&B.
9	Fulton	5½x 6	500	455	3	Slf. Spkr.
9	Guarantee	5½x 5	500	500	..	Batt.
9	Kahlenberg	6 x 6	375	650*	..	M.&B.
9	Vim	5 x 5	700	285	..	J.S.
10	Barker	6½x 8	400	500	..	M.&B.
10	Fay & Bowen	6¼x 6¼	475	810	2	M.&B.
10	Hubbard	7 x 7½	375	573	2	M.&B.
10	Imperial	5½x 6	500	600	..	J.S.
10	Lathrop	7 x 7½	300	850*	2	M.&B.
10	Mianus	6½x 7	375	775	2	M.&B.
11	Bridgeport	5¼x 5¼	800	310	3	....
12	Barber	6½x 6¾	600	400	3	J.S.B.
12	Gray	5¾x 5	800	415	3	J.S.
12	Guarantee	7 x 7	450	500	..	Batt.
12	Kahlenberg	6½x 7	350	750*	..	M.&B.
12	Lathrop	7½x 7½	275	900*	2	M.&B.
12	Monitor	6¾x 6½	450	475	..	....
15	Kahlenberg	7 x 8	325	900*	..	M.&B.
15	Fairbanks-Morse	8½x10	400	3750	3	J.S.

SINGLE-CYLINDER MOTORS
FOUR CYCLE

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
1¼	Nieland	3 x 3½	800	95	L.	M.& B.
2	Nieland	3½x 4	700	115	L.	M.& B.
2	Strang	3 x 4½	1,000	360	H.	J.S.
2½	Anderson	4 x 4	600	250	T.	J.S.B.
2½	Holliday	3½x 5	500	200	L.	Batt.
2½	Nieland	4 x 4½	475	350	L.	M.& B.
3	Alexander & Cox	4 x 5	600	....	L.	J.S.
3	Automatic	4½x 5	500	300	..	....
3	Matthews	2¾x 3	1,000	140	H.	J.S.M.
3	Strang	3½x 5	900	390	H.	J.S.
3½	Nieland	5 x 6	375	550	L.	M.& B.
3½	Palmer	4¾x 4½	600	350	T.	J.S.
3¾	Evansville	4 x 5	500	290	H.	J.S.
4	Atlas	5 x 5	480	720	..	....
4	Anderson	4½x 5	550	375	T.	J.S.B.
4	Chesapeake	4½x 5½	600	300	L.	J.S.
4	Clay	4½x 5	500	325	H.	J.S.
4	Fadum	4½x 5	500	500	L.	J.S.B.
4	Frisco Standard	4¾x 5½	420	615	H.	M.&B.
4	Grizzly Bear	4½x 5½	450	550	L.	J.S.
4	Guarantee	4½x 4½	600	350	L.	Batt.
4	Miller	4½x 5	600	400	..	J.S.B.
4	Missouri	4¾x 5	500	225	L.	J.S.
4	Regal	4 x 4½	800	275	L.	....
4	Strang	4 x 5	900	480	H.	J.S.
4	Union	5¼x 6	400	530	H.	M.&B.M.
4	Vulcan	4¾x 6	500	300*	T.	J.S.
5	Atlas	5½x 6	450	817	..	....
5	Campbell	5 x 5½	500	375	L.	Batt.
5	Evansville	5 x 6	500	425	H.	J.S.
5	Frisbie	4¾x 5	600	325	H.	J.S. or M.&B.
5	Frisco Standard	5¾x 6¾	400	850	H.	M.&B.
5	Holliday	5 x 6	500	500	L.	Batt.
5	Link	4¾x 5	500	225	L.	J.S.
5	Nieland	6 x 7	350	....	L.	M.& B.
5	Palmer	5 x 6	600	400	T.	J.S.
5	Regal	4½x 5½	600	360	L.	....
5	Union	5¼x 6½	400	640	L.	M.&B.M.
5	Vulcan	5¼x 7	500	500*	T.	J.S.
5	Wolverine	5½x 6	500	494	..	M.&B.
5	Yale	5¼x 6	500	600	L.	J.S.
6	Anderson	5 x 6¼	500	600	T.	J.S.B.



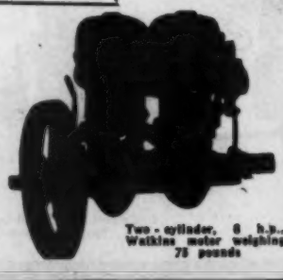
Pearose motor, special cycle, 3½-45 h.p.

Lockwood-Ash; nine two-cycle models, 2-12 h.p. and one 14 h.p., four-cycle motor

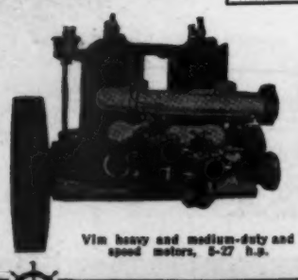
Mohawk two-cycle motors; one, two and three cylinders, 3½-30 h.p.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
6	Automatic	5½x 7	400	643	..	....
6	Clay	5½x 7	400	675	H.	J.S.
6	Doman	5 x 6	600	450	T.	J.S.
6	Fadum	5½x 7	500	....	L.	J.S.B.
6	Fisherman	5 x 6	600	465	H.	J.S.
6	Grizzly Bear	5½x 7	450	600	H.	J.S.
6	Hall	5 x 6¾	600	625	L.	....
6	Harris	5½x 6¾	500	....	..	M.& B.
6	Loew-Victor	4¾x 5½	600	472	T.	Batt.
6	Mercury	4½x 5	900	105	T.	J.S.M.
6	Miller	5¼x 6	500	600	..	J.S.B.
6	Nieland	6½x 7½	325	800	L.	M.& B.
6	Strang	4½x 6	850	698	H.	J.S.
6	Strelmotor	4½x 6	500	330	..	M.& B.
7	Campbell	5½x 6½	500	425	L.	Batt.
7	Chesapeake	5 x 6	550	450	L.	J.S.
7	Corliss	6¼x 7	400	900	T.	M.&B.
7	Frisbie	6 x 6	450	500	H.	J.S. or M.&B.
7	Frisco Standard	6½x 7	380	1,130	H.	M.&B.
7	Guarantee	6 x 6	500	450	L.	Batt.
7	Monarch	5 x 6	725	....	..	M.&B.B.
7	Parsons	4½x 6	850	560	L.	J.S.M.
7	Regal	5¼x 6½	550	780	L.	....
7½	Holliday	6 x 7	500	800	L.	Batt.
7½	Vulcan	6½x 7¼	450	750*	T.	J.S.
8	Clay	6½x 7	400	825	H.	J.S.
8	Evansville	6 x 6¼	500	660	H.	J.S.
8	Harris	x 7	460	....	..	M.& B.
8	Palmer	6½x 8	400	1,200	T.	J.S.
8	phia	6 x 8	350	1,000	L.	....
8	Strang	5½x 6	850	750	H.	J.S.
8	Tygard	3 x 3	1,000	100*	..	J.S.M.
9	Regal	6½x 7	500	1,040	L.	....
9	Strelmotor	6 x 8	500	702	..	M.& B.
10	Clay	7½x 7½	400	950	H.	J.S.
10	Guarantee	7 x 7	450	900	L.	Batt.
10	Monarch	6 x 7	725	....	..	M.&B.B.
10	Strang	6½x 7	650	800	H.	J.S.
11	Evansville	7 x 9	350	1,050	H.	J.S.
11	Vulcan	7½x 8½	400	800	T.	J.S.
12	Automatic	7½x 9	375	1,570	..	....

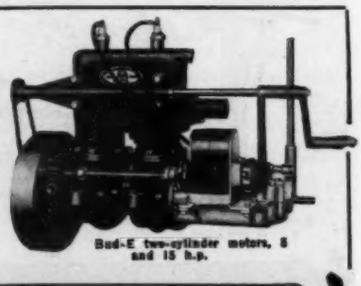
Matthews single-cylinder, four-cycle motor for yacht tenders



Two-cylinder, 6 h.p., Watkins motor weighing 75 pounds



Vim heavy and medium-duty and speed motors, 5-27 h.p.

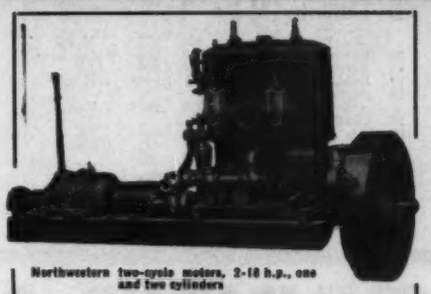


Bud-E two-cylinder motors, 8 and 15 h.p.

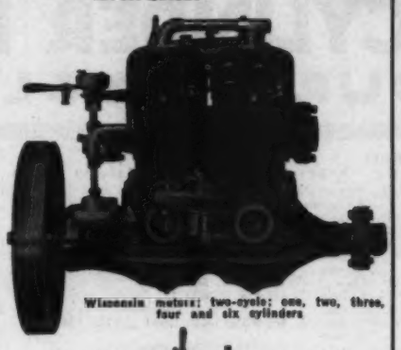
TWO-CYLINDER MOTORS

TWO-CYCLE

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
1	Sieverkropp	2 x 2	650	105	..	...
2	L-A	2⅝x 1½	800	60	..	J.S.B.
3	Alexander & Cox	3½x 3	600	...	..	J.S.
4	Amphion	2½x 2½	1,200	56	..	J.S.M.
4	Morristown	3 x 3	900	145	3	Batt.
4	Palmer	3¼x 3½	500	180*	3	M.&B.
5	Barber	3¼x 3¼	750	130*	3	J.S.B.
5	Bud-E	3 x 3	1,200	106	3	J.S.M.
5	Palmer	3¼x 3½	700	180*	3	J.S.
5	Strelmotor	3 x 2½	800	220	..	J.S.
5	Waterman	2¾x 2	800	78	3	J.S.
6	Cady	3½x 3¼	700	140*	..	J.S.
6	Ferro	3½x 3½	900	183	3	J.S.M.
6	Foreman	3½x 3½	800	200	3	J.S.M.
6	Gray	3½x 3½	1,000	189	3	J.S.
6	Guarantee	3½x 3½	600	275	..	Batt.
6	Hegeman	3½x 3¾	700	...	..	Batt.
6	L-A	3½x 3¾	750	160*	..	J.S.
6	Mianus	4 x 4	550	350	2	M.&B
6	Motorgo	3½x 3½	750	160*	2	Batt.
6	Ontario	3½x 3½	900	190	..	J.S.B.
6	Pilot	3½x 4	800	400	..	...
6	Red Wing	3½x 3½	600	240	2	J.S.B.
6	Roberts	3½x 3	1,000	160	..	J.S.
6	St. Law'nce	3¼x 3½	800	160	..	J.S.
6	Stanley	4 x 3½	500	350	..	M.&B.
6	Sterling (Chicago)	4 x 3½	800	210*	..	J.S.B.
6	Stork	3½x 3½	700	200*	..	J.S.M.
6	Vim	3½x 3½	750	187	..	J.S.
6	Watkins	3 x 3	950	75*	3	J.S.B.
6	Wood & Chute	4 x 4	600	400	..	M.&B. or J.S.
7	Barrie	3¼x 3¼	700	300	..	J.S.
7	Eagle	3½x 3¼	900	200	3	J.S.M.
7	Eagle	3½x 4	650	366	..	J.S.
7	Erd	3½x 3½	900	210	..	Batt.
7	Hubbard	4 x 4½	600	395	2	M.&B.
7	Mohawk	3½x 3¾	900	255	3	J.S.B.
7	Penrose	3½x 3½	600	185	Sp'l	J.S.
7	Stanley	4 x 3½	600	350	..	J.S.
7	Toledo	3½x 3½	700	200*	..	J.S.
8	Acadia	4 x 4	850	600	2	M.& B.
8	American	3½x 3½	900	280	..	J.S.
8	American	3½x 3½	900	260*	..	J.S.
8	Barber	4 x 4	600	285*	3	J.S.B.
8	Barker	4 x 5	550	380	..	M.&B.
8	Bridgeport	4½x 5	500	425	3	...
8	Cady	4¼x 4	700	205*	..	J.S.
8	Caille	3¾x 3½	700	250	3	J.S.B.
8	Caille	3¾x 3½	800	300	3	J.S.B.
8	Detroit	3¾x 3½	800	290*	..	J.S.B.
8	Ferro	3¾x 3½	800	239	3	J.S.M.
8	Fulton	3¾x 4	650	346	3	Slf. Spkr.
8	Hegeman	4 x 3¾	700	...	..	Batt.
8	Holmes-Howard	3½x 3	1,200	125	3	J.S.M.
8	Kahlenberg	4 x 4	550	350*	..	M.&B.
8	L-A	4 x 4	700	225*	..	J.S.
8	Lathrop	4½x 5	550	400*	..	M.&B.
8	Motorgo	4 x 4	750	225*	2	Batt.
8	Palmer	4½x 4½	450	325*	3	M.&B.
8	Red Wing	4 x 4	800	300	3	J.S.B.
8	S.H.M.	3¾x 3½	800	214	..	...
8	St. Law-rence	3½x 4	800	190	..	J.S.
8	Stork	4 x 4	700	400	..	J.S.M.
8	Strelmotor	4 x 3½	800	340	..	J.S.
8	Toppan	4 x 4	700	350	..	...
8	Wood & Chute	4½x 5	550	490	..	M.&B. or J.S.
9	Essex	4½x 5¼	500	460*	..	M.&B.
9	Hettinger	4½x 6	550	575	..	J.S.
9	Hubbard	4½x 5	575	450	2	M.&B.
9	Knox	4¼x 4½	...	450	..	J.S.
9	Schneider	3¾x 3¾	850	350	..	...
9	Smalley	3½x 4	...	...	..	J.S.
10	Acadia	4 x 4	800	600	2	J.S.
10	Acadia	4½x 4	600	800	2	M.& B.
10	Belle Isle	4¼x 3¾	700	285	..	J.S.
10	Bridgeport	5¼x 5½	500	570	3	...
10	Capital	3½x 3¾	1,200	185	..	...
10	Chesapeake	4½x 5	575	500	..	M.&B.
10	Elk	4 x 4	800	260	..	J.S.B.
10	Erd	4 x 4	800	290	..	Batt.
10	Essex (Cana-dian)	4½x 5¼	500	500*	..	M.&B.
10	Fay & Bowen	4½x 4½	550	510	2	M.&B.

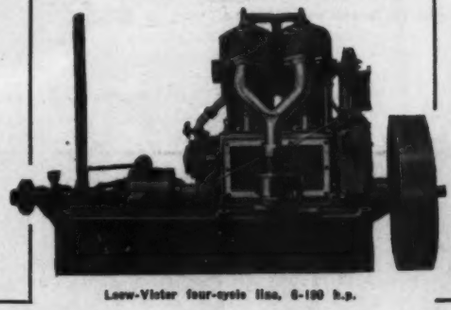


Northwestern two-cycle motors, 2-18 h.p., one and two cylinders



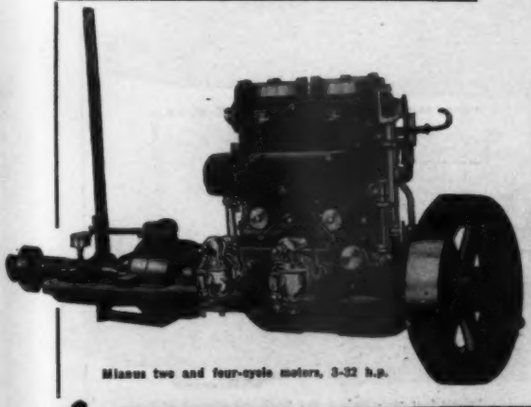
Wisconsin motors; two-cycle: one, two, three, four and six cylinders

Kahlenberg heavy duty, two-cycle motors, 2-85 h.p.

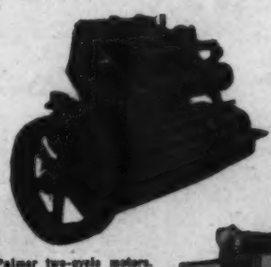


Loew-Victor four-cycle line, 6-100 h.p.

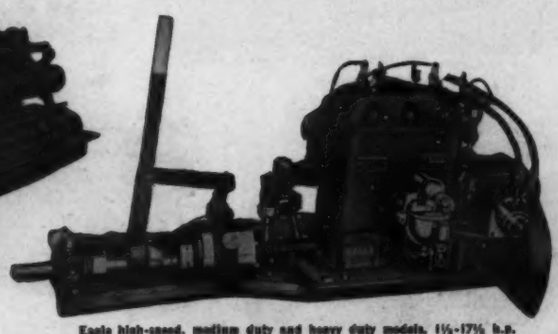
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
10	Foreman	4¼x 4¼	600	375	..	J.S.M.
10	Fulton	3¾x 4	650	346	3	J.S.B.
10	Guarantee	4½x 4½	600	450	..	Batt.
10	Imperial	4½x 4	500	400	..	J.S.
10	Lathrop	5½x 5	500	475	2	M.&B.
10	Leary	3¾x 3¾	800	266	..	J.S.B.
10	Mianus	4½x 5	500	575	2	M.&B.
10	Mohawk	4½x 4½	500	580	2	J.S.B.
10	Morristown	4 x 4	900	240	3	J.S.B
10	Northwest.	4 x 4½	800	325*	..	Batt.
10	Oriole	4½x 5	475	600	2	J.S.
10	Palmer	4½x 4½	650	325*	3	J.S.
10	Penrose	3½x 3½	1,300	115	Sp'c'l	J.S.
10	Red Wing	4 x 4½	600	340	2	J.S.B.
10	Rice	4 x 4	900	220	..	J.S.
10	Roberts	4 x 3½	1,000	200	..	J.S.
10	Simplex	3½x 4½	900	...	Sp'l	...
10	Stanley	5½x 4½	425	575	..	M.&B.
10	Valveless	3½x 3½	720	190	..	J.S.
10	Vanguard	4 x 4	700	435	..	...
10	Vim	4 x 4	700	270	..	J.S.
10	Watertown	3¾x 4¼	1,000	240	..	J.S.B.
10	Wisconsin	4 x 4	850	365	..	...
10	Wood & Chute	5 x 5	500	550	..	M.&B.
11	Ferro	4¼x 4¼	800	333	3	J.S.M.
11	Gray	4¾x 4¼	1,000	375	3	J.S.
11	Hubbard	5 x 5½	550	531	2	M.&B.
11	Knox	5 x 5¼	...	550	..	J.S.
11	Palmer	5 x 6	400	445*	3	M.&B.
12	Barber	4¾x 4¾	600	375	3	J.S.B.
12	Capital	4½x 5½	600	450	..	...
12	Detroit	4¼x 4½	800	400*	..	J.S.B.
12	Eagle	4½x 5	600	565	3	J.S.
12	Eagle	5 x 6	450	680	2	J.S.
12	Essex	5 x 6	450	640*	..	M.&B.
12	Foreman	4¼x 4¼	800	375*	..	J.S.M.
12	Fulton	4½x 5	600	525	3	Slf. Spkr.
12	Hegeman	4½x 4½	700	...	..	Batt.
12	Hettinger	5½x 6	550	725	..	J.S.
12	Kahlenberg	5 x 5	400	650*	..	M.&B.
12	Lathrop	5½x 5	500	500*	2	M.&B.
12	Lathrop	5¾x 6½	500	550*	2	M.&B.
12	L-A	4½x 4½	700	330*	..	J.S.
12	Mianus	4½x 5	700	575	2	J.S.
12	Mohawk	4½x 4½	700	480	2	J.S.B.
12	Mohawk	4½x 3¾	1,200	255	2&3	J.S.B
12	Mohawk	4½x 4½	700	460	3	J.S.
12	Palmer	5 x 6	625	425*	3	J.S.
12	Pilot	4¾x 5	600	620	..	...
12	Red Wing	4½x 4½	800	375	3	J.S.B.
12	Stork	4½x 4½	700	450	..	J.S.M
12	St. Law-rence	4 x 4½	800	200	..	J.S.
12	Sterling (Chicago)	5 x 4½	800	290*	..	J.S.B.
12	Toledo	4½x 4½	750	300*	..	J.S.
12	Toppan	4¾x 4¾	700	500	..	...
12	Vim	5 x 5	450	510	..	J.S.
12	Waterman	4 x 4	900	170	3	J.S.
12	Watkins	3 x 3	950	140*	3	J.S.B.
12	Wood & Chute	5½x 6	450	740	..	M.&B. or J.S.
13	Acadia	5½x 5	800	850	2	M.& B.
13	Essex (Cana-dian)	5 x 6	450	750*	..	M.&B.
14	American	4¾x 4½	800	400	..	J.S.
14	Bridgeport	5½x 6	450	800	3	...
14	Caille	4¾x 4½	600	400	3	J.S.B.
14	Fairbanks-Morse	5 x 4½	800	455	5	J.S.
14	Gray	4¾x 4	950	430	3	J.S.
14	Guarantee	5 x 5	450	600	..	Batt.
14	Kahlenberg	5 x 6	400	850*	..	M.&B.
14	Lathrop	6 x 6½	425	900*	2	M.&B.
14	Missouri	5 x 6	500	1,100	..	Semi-Diesel
14	Ontario	5 x 5	600	500	..	J.S.B.
14	Oriole	5½x 6¼	450	925	2	J.S.
14	Stanley	5¾x 4½	600	575	..	J.S.
14	Watertown	5 x 5	600	...	..	J.S.B.
14	Wisconsin	4½x 4½	850	330	..	...
15	Acadia	4 x 4	900	750	2	J.S.
15	Barker	5¼x 5½	...	540	..	...
15	Bud-E	4½x 4	1,200	207	3	J.S.M
15	Eagle	6 x 6½	400	980	..	J.S.
15	Fay & Bowen	5½x 5½	500	900	2	M.&B.
15	Ferro	5 x 5	800	417	3	J.S.M.
15	Hubbard	6 x 6½	450	816	2	M.&B.
15	Knox	5½x 6¼	...	830	..	J.S.



Mianus two and four-cycle motors, 3-32 h.p.



Palmer two-cycle motors, 3½-12 h.p. and four-cycle, 5½-80 h.p.



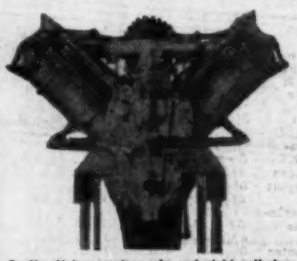
Eagle high-speed, medium duty and heavy duty models, 1½-17½ h.p.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
15	Mianus	5⅛x 6	450	875	2	M.&B.
15	Monitor	5 x 5	600	435	..	...
15	Pierce-Budd	4 x 4	1,200	170*	..	J.S.B.
15	S.H.M.	4½x 5	750	314	..	...
15	Stanley	5½x 6	425	790	..	M.&B.
15	Vim	4 x 4	1,100	360	..	J.S.
15	Wood & Chute	6 x 6	450	900	..	M.&B. or J.S.
16	Acadia	5½x 6	450	1,050	2	M.& B.
16	Bridgeport	4½x 5	800	425	3	...
16	Chesapeake	5 x 5	375	400	..	M.&B.
16	Essex	6 x 6	400	760*	..	M.&B.
16	Fulton	4½x 5	500	425	3	J.S.B.
16	Kahlenberg	5½x 6	380	950*	..	M.&B.
16	Lathrop	6¼x 6½	400	950*	2	M.&B.
16	Mohawk	4½x 4½	900	455	2&3	J.S.B.
16	Stork	5 x 5	700	555	..	J.S.M.
16	Strelmotor	5 x 4½	800	560	..	J.S.
17	Oriole	6¼x 6½	425	1,135	2	J.S.
17½	Eagle	4½x 5	1,300	350	3	J.S.M.
18	Barber	5½x 5¼	900	535*	3	J.S.B.
18	Bridgeport	6½x 7	400	1,075	3	...
18	Detroit	5¼x 5	800	700*	..	J.S.B.
18	Essex (Canadian)	6 x 6	450	875*	..	M.&B.
18	Fulton	5½x 6	500	654	3	Slf. Spkr.
18	Hettinger	6½x 8	425	1,500	..	J.S.
18	Kahlenberg	6 x 6	375	1,100*	..	M.&B.
18	Northwestern	5 x 6	700	460*	..	Batt.
18	Smalley	4½x 4½	...	...	..	J.S.
18	Vim	5 x 6	700	450	..	J.S.
20	American	5¼x 5	900	545	..	J.S.
20	Capital	4½x 4¼	1,300	300	..	...
20	Fay & Bowen	6¼x 6¼	475	1,260	2	M.&B.
20	Imperial	5½x 6	500	900	..	J.S.
20	Lathrop	7 x 7½	300	1,400	2	M.&B.
20	Mianus	6½x 7	375	1,300	2	M.&B.
20	Roberts	4½x 5	1,000	350	..	J.S.
22	Bridgeport	5¼x 5¼	800	570	3	...
24	Barber	6½x 6¼	600	995	3	J.S.B.
24	Gray	5¼x 5	800	750	3	J.S.
24	Kahlenberg	6½x 7	350	1,300*	..	M.&B.
24	Lathrop	7½x 7½	275	1,500	2	M.&B.
25	Hettinger	7½x 9	375	2,000	..	J.S.
25	Hubbard	7 x 7½	375	1,600	2	M.&B.
25	Monitor	6¼x 6½	450	840	..	...
25	Smalley	5½x 5½	...	...	..	J.S.
25	Vim	5 x 5	1,100	370	..	J.S.
30	Fairbanks-Morse	8½x10	400	4,950	..	Semi-Dies.
30	Kahlenberg	7 x 8	325	1,800*	..	M.&B.
30	Robert's Motor	5¼x 6½	1,000	4,000	3	J.S.M.
36	Kahlenberg	7¾x 8	325	2,000*	..	M.&B.
40	Barber	8 x 8	...	1,950*	3	J.S.B.
55	Kahlenberg	9 x10	300	3,400*	..	M.&B.
120	Southwark-Harris	9 x13	300	14,000	..	Diesel

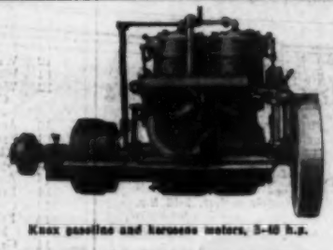
TWO-CYLINDER MOTORS

FOUR-CYCLE

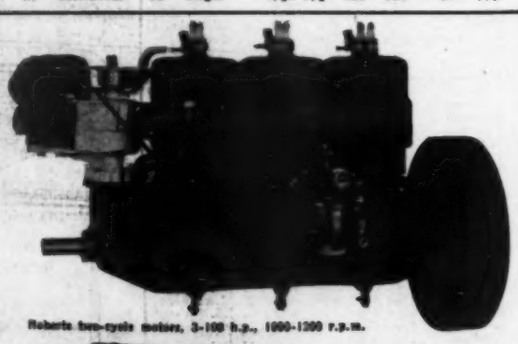
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
4	Buffalo	3 x 4	700	240	L.	J.S.
4	Murray & Tregurtha	3½x 4	550	400	H.	J.S.M.
4	Nieland	3½x 4	700	375	L.	M.& B.
5	Anderson	4 x 4	600	350	T.	J.S.B.
5	Holliday	3½x 5	500	400	L.	Batt.
5	Nieland	4 x 5	475	500	L.	M.& B.
6	Alexander & Cox	4 x 5	600	...	L.	J.S.
6	Automatic	4¼x 5	500	525	..	...
6	Buffalo	3½x 5	600	400	L.	J.S.
6	Doman	4 x 5	600	550	T.	J.S.
6	Gray	3 x 4	1,000	350	L.	J.S.
6	Matthews	2¾x 3	1,000	170	H.	J.S.M.
6	Miller (H-O)	4½x 4	600	275	..	J.S.B.
6	Murray & Tregurtha	4½x 5	550	600	H.	J.S.M.
7	Nieland	5 x 6	375	775	L.	M.& B.
7	Palmer	4½x 4½	600	500	T.	J.S.
7	Union	4½x 5	600	500	L.	M.&B.M.
7½	Evansville	4 x 5	500	395	H.	J.S.
8	Anderson	4½x 5	550	550	T.	J.S.B.
8	Atlas	5 x 6	480	1,150	..	...
8	Barrie	5 x 5	500	550	L.	J.S.
8	Carl	4½x 5	650	350	H.&S.	...
8	Chesapeake	4½x 5	700	350	L.	J.S.
8	Clay	4½x 5	500	500	H.	J.S.
8	Fadum	4½x 5	500	...	L.	J.S.B.
8	Frisco Standard	4¾x 5¼	440	1,000	H.	M.&B.
8	Grizzly Bear	4½x 5½	450	550	L.	J.S.
8	Guarantee	4½x 4½	450	450	L.	Batt.
8	Miller (H-O)	4½x 5	550	350	..	J.S.B.
8	Missouri	4½x 5	500	375	L.	J.S.
8	Niagara	3½x 4½	750	415	T.	J.S.M.
8	Regal	4 x 4½	600	450	L.	...
8	Sterling	4½x 6	500	730	T.	J.S.B.
8	Union	5¼x 6	500	1,150	L.	M.&B.M.
8	Vulcan	4½x 6	550	650	T.	J.S.
10	Brennan	4¾x 5	600	400	..	...
10	Campbell	5 x 5½	500	450	L.	Batt.
10	Dice (H-O)	5 x 5	750	...	L.	J.S.B.
10	Evansville	5 x 6	500	530	H.	J.S.
10	Frisbie	4¾x 5	600	430	H.	J.S. or M. &B.
10	Frisco Standard	5½x 6	400	1,320	H.	M.&B.
10	Gray	3¾x 4½	1,000	435	..	J.S.
10	Harris	5 x 5½	550	...	..	J.S.
10	Holliday	5 x 6	500	800	L.	Batt.
10	Miller	4½x 6	600	700	..	J.S.M.
10	Nieland	6 x 7	350	1,180	L.	M.& B.
10	Palmer	5 x 6	600	750	T.	J.S.
10	Philadelphia	4½x 5½	500	350	L.	J.S.
10	Ralaco	4 x 6	600	860	H.	J.S.M.
10	Regal	4½x 5½	600	685	L.	...



Curtiss V-type motors, six and eight cylinders

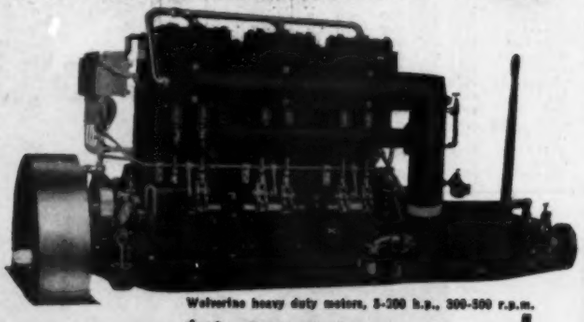


Knox gasoline and kerosene motors, 3-40 h.p.

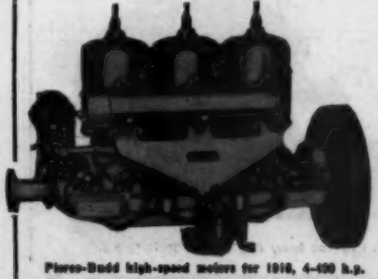


Roberts two-cycle motors, 3-100 h.p., 1000-1200 r.p.m.

Morristown four-cycle motor, 25 h.p.

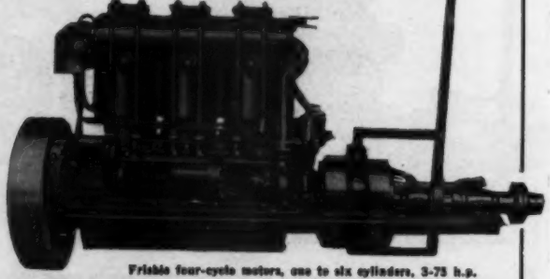


Wolverine heavy duty motors, 5-200 h.p., 300-500 r.p.m.



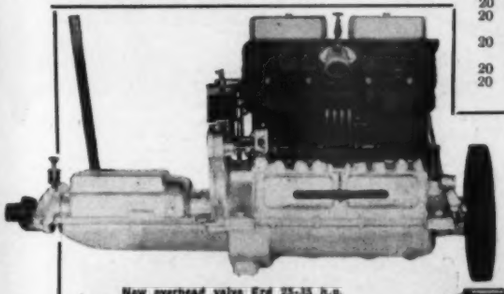
Pierce-Budd high-speed motors for 1916, 4-400 h.p.

Winton high-class engines for motor yachts, 15-200 h.p.

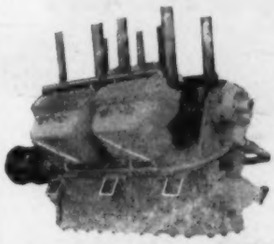


Frisbie four-cycle motors, one to six cylinders, 3-75 h.p.

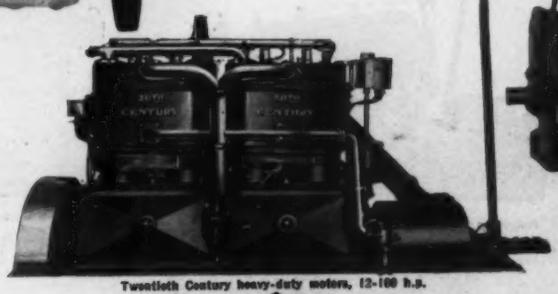
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
10	Reliable (H–O)	5 x 5	600	950	H.	J.S.M.
10	Stork	5 x 6	550	850	T.	J.S.M.
10	Union	5¼x 6½	450	850	L.	M.&B.M.
10	Vulcan	5¼x 7	500	900	T.	J.S.
10	Yale	5¼x 6	500	900	L.	J.S.
11	Murray & Tregurtha	5 x 6	500	700	H.	J.S.M.
12	Anderson	5 x 6	500	850	T.	J.S.M.
12	Atlas	6 x 7	450	1,425	..	...
12	Automatic	5½x 7	400	1,115	..	...
12	Barrie	6 x 6	450	500	L.	J.S.
12	Beilfuss (H–O)	4¼x 4½	1,000	250	..	J.S.
12	Buffalo	5 x 6½	400	1,000	L.	D.J.S.
12	Carl	5 x 6	600	560	H.&S.	...
12	Corliss	6 x 7	400	1,400	T.	M. & B.
12	Dice (H–O)	5½x 5	750	...	L.	J.S.B.
12	Doman	5 x 6	600	750	T.	J.S.
12	Fadum	5½x 7	500	...	L.	J.S.B.
12	Fisherman	5 x 6	600	800	H.	J.S.
12	Frisco Standard	6 x 7	380	1,690	H.	M.&B.
12	Grizzly Bear	5½x 7	450	1,200	H.	J.S.
12	Harris	5½x 6½	475	...	..	J.S.
12	Harris	5½x 6¾	475	...	..	J.S.
12	Lamb	5¼x 6	500	825	L.	J.S.B.
12	Lathrop	5¼x 6½	450	900	T.	J.S.
12	Lisk	4¾x 5	500	400	L.	J.S.B.
12	Loew-Victor	4¾x 5½	600	626	T.	Batt.
12	Miller	5¼x 6	500	950	..	J.S.M.
12	Miller (H–O)	5¼x 6	500	500	..	J.S.B.
12	Missouri	5 x 6	500	650	L.	J.S.
12	Nieland	6½x 7½	325	1,400	L.	M.& B.
12	Peerless	4 x 6	800	450	T.	J.S.M.
12	Robert's Motor	5 x 6	500	750	T.	J.S.M.
12	Standard	5 x 6½	400	850	..	M.&B.
12	Sterling	5½x 7	500	1,065	L.	J.S.M.
12	Union	6 x 7	400	1,290	L.	M.&B.M.
12	Wolverine	5½x 7	500	950	..	M.&B.
13	Scripps	4½x 5	800	650	L.	J.S.M.
14	Brennan	5 x 5	600	500	..	...
14	Campbell	5½x 6½	500	675	L.	Batt.
14	Chesapeake	5 x 6	500	900	L.	J.S.
14	Clay	5½x 7	400	1,250	H.	J.S.
14	Clifton	6½x 7	400	1,050	L.	J.S.B.
14	Guarantee	6 x 6	450	700	L.	Batt.
14	Miller	5¼x 7	450	1,050	..	J.S.M.
14	Murray & Tregurtha	5½x 7	425	1,200	H.	J.S.M.
14	Niagara	4¾x 5½	750	625	T.	J.S.M.
14	Parsons	4½x 6	550	550	L.	J.S.M.
14	Regal	5¼x 6½	550	950	L.	...
14	Wolverine	6½x 7	400	1,279	..	M.&B.
15	Buffalo	6 x 7½	350	1,400	L.	D.J.S.
15	Capitol	4¾x 5½	1,000	...	..	J.S.M.
15	Holliday	6 x 7	500	1,200	L.	Batt.
15	Lamb	4½x 6¾	550	850	H.	J.S.B.
15	Monarch	5 x 6	725	...	..	M.&B. B.
15	Ralaco	5 x 7	500	1,300	H.	J.S.M.
15	Scripps	4½x 5	900	500	L.	J.S.M.
15	Stork	4½x 5½	900	450	T.	J.S.M.
15	Strang	5½x 7	650	1,100	H.	J.S.
15	Vulcan	6½x 7¼	475	1,300	T.	J.S.
16	Atlas	6½x 7½	425	2,475	..	...
16	Carl	6 x 8	500	750	H.&S.	...
16	Corliss	6¾x 7½	360	1,950	T.	M. & B.
16	Evansville	6 x 6¾	500	910	H.	J.S.
16	Frisbie	6 x 6	550	700	H.	J.S. or M. &B.
16	Frisco Standard	6¼x 7½	360	1,785	H.	M.&B.
16	Hall	5½x 6¾	600	900	L.	...
16	Harris	6 x 7	450	...	..	J.S.
16	Lathrop	5½x 8	375	1,500	T.	J.S.
16	Mianus	6 x 8	400	1,550	T.	J.S.andM. &B.
16	Miller	6 x 8	350	1,400	..	J.S.M.
16	Miller (H–O)	6 x 6	450	750	..	J.S.B.
16	Palmer	6½x 8	400	1,600	T.	J.S.
16	Philadelphia (H–O)	6½x 8¼	375	1,800	L.	...
16	Reliable (H–O)	6 x 6	550	1,400	L.	J.S.M.
16	Stork	6 x 7	450	1,250	T.	J.S.M.
16	20th Century	5¾x 7¼	400	1,150	H.&S.	J.S.
16	Union	6¼x 8	400	1,750	L.	M.&B.M.
16	Wood & Chute	6 x 7	400	1,400	..	J.S.
17	Blount	5½x 6½	600	1,100	..	...
17	Peerless	5 x 6	800	500	T.	J.S.M.
18	Clay	6 x 7	400	1,800	H.	J.S.
18	Miller	6 x 7	450	1,100	..	J.S.M.
18	Murray & Tregurtha	6½x 8	425	1,800	H.	J.S.M.
18	Regal	6½x 7	500	1,550	L.	...
18	Standard	6 x 8	350	1,200	H.&S.	M.&B.
18	Strelmotor	6 x 6	500	1,265	..	M.& B.
20	Atlas	7½x 8½	350	3,070	..	...
20	Beilfuss (H–O)	5 x 5	1,000	365	..	J.S.
20	Campbell	6¼x 7½	500	1,475	L.	J.S.M.
20	Corliss	7¾x 9	330	3,100	T.	M. & B.
20	Frisco Standard	7¾x 9	320	2,885	H.	M.&B.
20	Guarantee	7 x 7	450	1,000	L.	Batt.
20	Hall	5½x 8½	400	1,400	L.	...
20	Knox	7 x 8	...	1,900	..	M.&B.
20	Lawley	6½x 9	350	1,800	..	...
20	Miller (H–O)	7 x 7	400	950	..	J.S.B.
20	Monarch	6 x 7	725	...	..	M.&B.B.
20	Nieland	7½x 9	300	2,000	L.	M.& B.
20	Reliable (H–O)	6 x 6	600	815	H.	J.S.M.
20	Robert's Motor	6 x 8	500	1,080	T.	J.S.M.
20	Stork	5½x 6½	900	500	T.	J.S.M.
20	20th Century	6½x 8½	350	1,600	H.&S.	J.S.
20	Tygard	4 x 4	1,800	300*	..	J.S.M.
20	Tygard (D.A.)	4 x 4	1,800	300*	..	J.S.M.
20	Union	7½x 9	380	2,400	..	...
20	Yale	7 x 9	375	2,000	L.	J.S.
21	Parsons	4½x 6	850	1,080	L.	J.S.M.
22	Buffalo	7 x 9	350	2,100	L.	D.J.S.
22	Clay	7½x 7½	400	1,725	H.	J.S.
22	Evansville	7 x 9	350	1,515	H.	J.S.
22	Harris	6½x 8½	375	...	..	J.S.
22	Vulcan	7½x 8½	425	2,100	T.	J.S.
24	Bridgeport	7½x 9	375	2,000	L.	J.S.M.
24	Doman	7 x 9	400	1,850	T.	J.S.
24	Mercury	5½x 5	900	450	T.	J.S.M.
24	Peerless	5½x 7	700	1,000	T.	J.S.M.
25	Anderson	7 x 8½	450	1,200	T.	J.S.M.
25	Automatic	7½x 9	375	2,625	..	...
25	Corliss	8 x10	330	3,500	T.	M. & B.
25	Dice (H–O)	6½x 8	550	...	L.	J.S.B.
25	Palmer	7½x10	400	3,000	T.	J.S.
25	Ralaco	7 x 9	400	3,300	H.	M.&B.
25	Reliable (H–O)	7 x 7	450	2,200	H.	J.S.M.
25	Stork	7½x 9	400	2,250	T.	J.S.M.
25	Vulcan	6½x 7¼	475	1,700	T.	J.S.
27	Atlas	8½x10	325	4,165	..	...
28	Clay	7½x 9	375	2,775	H.	J.S.
30	Corliss	9 x10½	300	4,200	T.	M. & B.
30	Frisbie	7 x 9	500	1,700	H.	J.S. or M. &B.
30	Frisco Standard	8¼x10½	300	4,190	H.	M.&B.
30	Miller (H–O)	7 x10	300	1,500	..	J.S.B.
30	Parsons	6½x 8	600	3,300	L.	J.S.M.
30	20th Century	8 x10	350	1,800	H.&S.	J.S.
30	Union	8¼x11	300	4,265	..	...
32	Hall	7½x10	350	4,000	L.	...
32	Hall	7½x11	350	4,000	L.	...
32	Harris	8 x10	350	...	..	J.S.
32	Fulton	8 x 9	400	3,500	H.	Diesel
32	Reliable (H–O)	7½x 8	450	2,350	H.	J.S.M.
35	Clay	8½x 9	375	2,950	H.	J.S.
35	Vulcan	7½x 8½	425	2,800	T.	J.S.
36	Monarch	8 x 9	500	...	..	M.&B.B.
40	Reliable (H–O)	9 x10	350	5,200	H.	J.S.M.
42	Clay	8½x10	375	3,150	H.	J.S.
50	Anderson	9½x11	400	3,250	T.	J.S.M.
50	Atlas	10½x12	300	7,750	..	...
50	Corliss	10½x12	280	6,250	T.	M. & B.
50	Reliable (H–O)	9¼x11	350	5,000	H.	J.S.M.
55	Monarch	10 x10	450	...	..	M.&B.B.
60	Reliable (H–O)	10 x11	350	6,000	H.	J.S.M.
65	Atlas	12 x12	280	8,500	..	...
65	Corliss	12 x14	260	9,600	T.	M. & B.
100	Tygard	8 x 4	2,000	500*	..	J.S.M.
100	Tygard (D.A.)	8 x 4	1,000	700*	..	J.S.M.
150	Tygard	12 x10	2,000	2,500*	..	J.S.M.
150	Tygard (D.A.)	12 x10	1,000	3,000*	..	J.S.M.
300	Tygard	14 x10	2,000	3,000*	..	J.S.M.
300	Tygard (D.A.)	14 x10	1,000	3,800*	..	J.S.M.



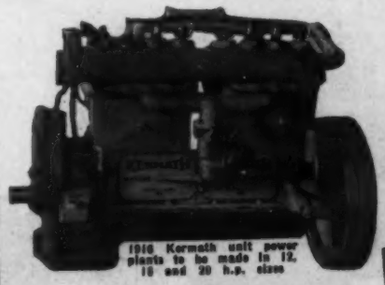
New overhead valve Erd 25-35 h.p. four-cycle



Thomas, eight-cylinder, 135 h.p. motor

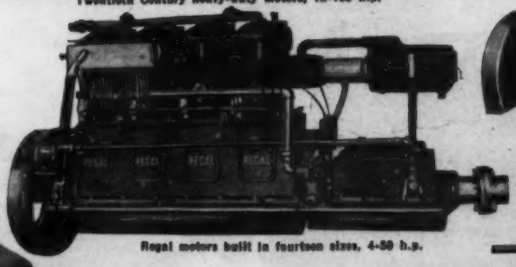


Twentieth Century heavy-duty motors, 12-100 h.p.

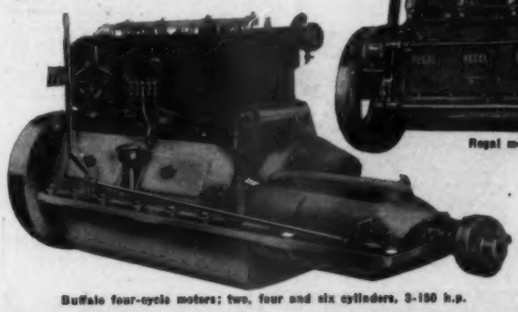


1916 Kermath unit power plants to be made in 12, 16 and 20 h.p. sizes

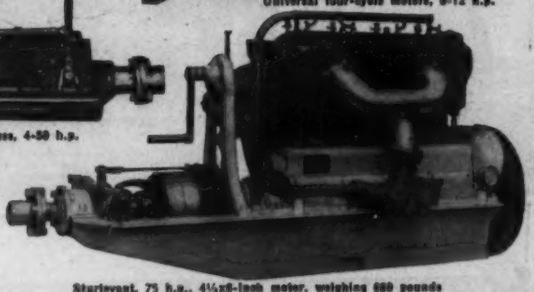
Universal four-cycle motors, 6-12 h.p.



Regal motors built in fourteen sizes, 4-50 h.p.



Buffalo four-cycle motors; two, four and six cylinders, 3-150 h.p.

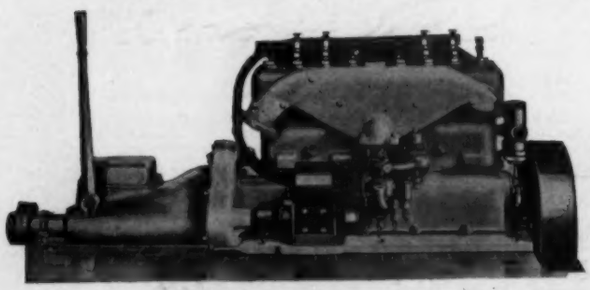


Sturtevant, 75 h.p., 4½x6-inch motor, weighing 680 pounds

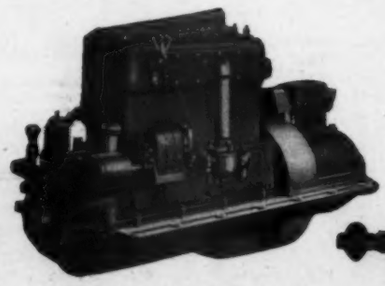
THREE-CYLINDER MOTORS

TWO CYCLE

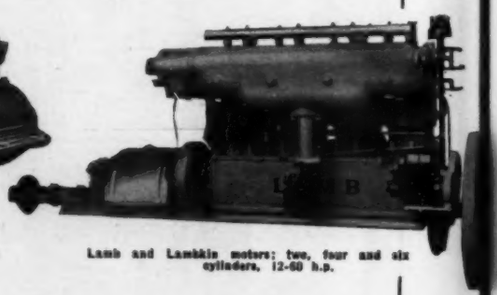
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
6	Morristown	3 x 3	900	165	3	Batt.
8	Barber	3½x 3½	750	205*	3	J.S.B.
8	Palmer	3½x 3½	600	230*	3	J.S.
9	Hegeman	3½x 3½	700	...	..	J.S.M.
9	Ontario	3½x 3½	900	270	..	J.S.B.
10½	Barrie	3¾x 3¾	700	400	..	J.S.
11	Eagle	3¾x 4	650	480	..	J.S.
12	Barber	4 x 4	600	500*	3	J.S.B.
12	Cady	4¼x 4	700	275*	..	J.S.
12	Erd	3½x 3½	900	300	..	J.S.M.
12	Ferro	3¾x 3½	800	312	3	J.S.M.
12	Hegeman	4 x 3¾	700	...	..	J.S.M.
12	Kahlenberg	4 x 4	550	450*	..	M.&B.
12	St. Lawrence	3½x 4	800	215	..	J.S.
12	Stork	4 x 4	700	550	..	J.S.M.
15	Capital	3½x 3¼	1,200	250	..	..
15	Erd	4 x 4	900	390	..	J.S.M.
15	Essex (Canadian)	4½x 5¼	500	800	..	M.&B.
15	Foreman	4 x 4½	800	450	..	J.S.M.
15	Imperial	4½x 4	500	475	..	J.S.
15	Leary	3¾x 3¾	800	365	..	J.S.B.
15	Morristown	4 x 4	900	290	3	J.S.B.
15	Palmer	4½x 4½	550	600*	3	J.S.
15	Roberts	4 x 3½	1,000	370	..	J.S.
15	Valveless	3½x 3½	720	155	..	J.S.
15	Vanguard	4 x 4	700	367	..	..
15	Vim	4 x 4	700	340	..	J.S.
15	Watertown	3¾x 4¼	100	310	..	J.S.B.
16	Knox	5 x 5½	...	850	..	J.S.
17	Ferro	4¼x 4¼	800	448	3	J.S.M.
18	Barber	4¾x 4¾	600	525*	3	J.S.B.
18	Capital	4½x 5½	600	575	..	...
18	Hegeman	4½x 4½	700	...	..	J.S.M.
18	Kahlenberg	5 x 5	400	800*	..	M.&B.
18	Lathrop	5½x 5	500	850	2	J.S.
18	Mohawk	4½x 4½	700	500	3	J.S.B.
18	St. Lawrence	4 x 4½	800	280	..	J.S.
18	Stork	4½x 4½	700	600	..	J.S.M.
18	Toledo	4½x 4½	750	425*	..	J.S.
18	Vim	5 x 5	450	680	..	J.S.
18	Wisconsin	4 x 4	900	375	..	...
19½	Essex (Canadian)	5 x 6	450	1,280*	..	M.&B.
20	Bridgeport	4½x 5	700	800	3	..
21	Fairbanks-Morse	5 x 4½	800	600	3	J.S.
21	Gray	4¾x 4	1,100	500	3	J.S.
21	Kahlenberg	5 x 6	400	1,000*	..	M.&B.
21	Mohawk	4¾x 3¾	1,200	340	2&3	J.S.B.
21	Ontario	5 x 5	600	700	..	J.S.B.
22	Missouri	5 x 6	500	1,650	..	Semi-Diesel
22	Monitor	5 x 5	600	640	..	...
22	Smalley	4½x 5½	...	...	..	J.S.
22½	S.H.M.	4½x 5	750	510	..	...
23	Vim	4 x 4	1,100	310	..	J.S.
24	Acadia	5½x 6	550	1,500	2	J.S.
24	Kahlenberg	5½x 6	380	1,200*	..	M.&B.
24	Lathrop	6½x 6½	450	1,500	2	J.S.
24	St. Lawrence	4¾x 5	800	500	..	J.S.
24	Stork	5 x 5	700	700	..	J.S.M.
25	Ferro	5 x 5	800	555	3	J.S.M.
25	Pierce-Budd	4 x 4	1,200	240*	..	J.S.B.
27	Barber	5½x 5¼	600	690*	3	J.S.B.
27	Kahlenberg	6 x 6	375	1,500*	..	M.&B.
27	Smalley	4½x 4½	...	...	..	J.S.
27	Wisconsin	4½x 4¼	900	430	..	...
27	Vim	5 x 5	700	614	..	J.S.
28	Smalley	4½x 4½	...	...	..	J.S.
30	Capital	4½x 4½	1,200	390	..	..
30	Erd	4½x 4½	1,200	275	..	J.S.M.
30	Imperial	5½x 6	500	...	..	J.S.
30	Missouri	5 x 6	500	2,700	..	Semi-Diese
30	Mohawk	4½x 4½	1,200	565	2&3	J.S.B.
30	Roberts	4½x 5	1,000	475	..	J.S.
35	Smalley	5½x 5½	...	...	..	J.S.
36	Barber	6½x 6¼	...	925	3	J.S.B.
36	Gray	5¾x 5	1,000	925	3	J.S.
36	Kahlenberg	6½x 7	325	1,700*	..	M.&B.
36	Lathrop	7½x 7½	275	2,500	2	J.S.
36	Monitor	6¾x 6½	450	1,150	..	...
45	Fairbanks-Morse	8½x10	400	5,970	3	J.S.
45	Kahlenberg	7 x 8	325	2,600*	..	M.&B.
45	Kahlenberg	7¾x 8	325	2,800*	..	M.&B.
45	Robert's Motor	5¾x 6½	1,000	525	3	J.S.M.
60	Barber	8 x 8	...	2,850	3	J.S.B.
75	Fairbanks-Morse	10¾x12½	340	10,000	3	J.S.
85	Kahlenberg	9 x10	300	5,000*	..	M.&B.



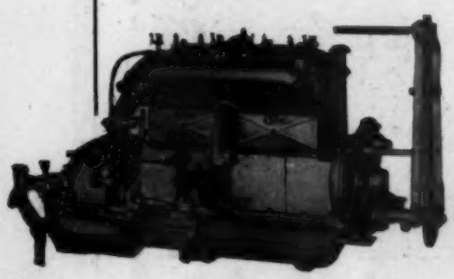
Caille Perfection four-cycle motor



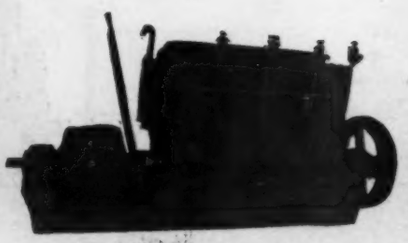
Miller direct and double-opposed motors, built in twenty-three different sizes



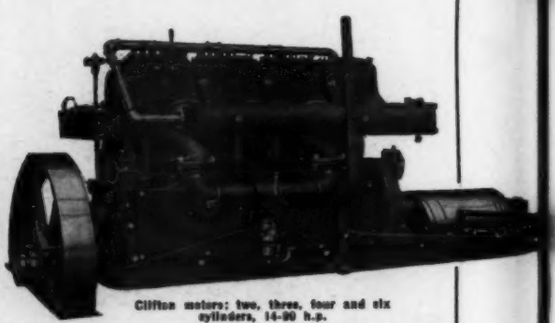
Lamb and Lambkin motors; two, four and six cylinders, 12-60 h.p.



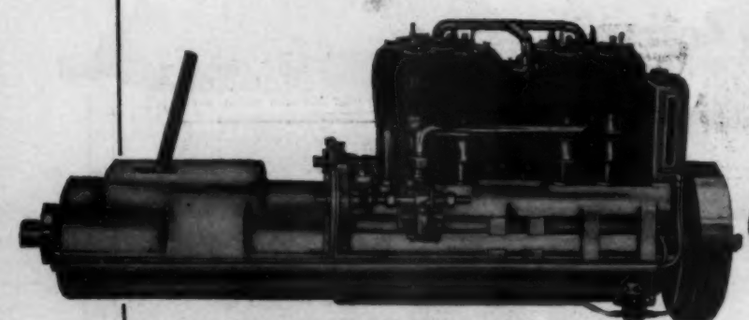
Four-cycle Capitol motor



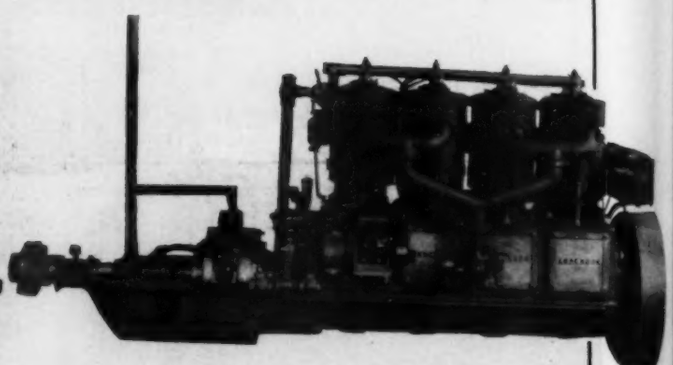
Automatic heavy duty, four-cycle motors, 3-250 h.p.



Clifton motors; two, three, four and six cylinders, 14-90 h.p.



Four-cycle Fulton motor, built in seven sizes in addition to ten two-cycle models and four Diesel types



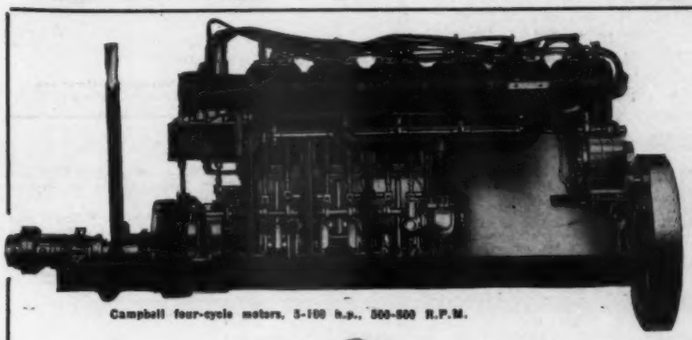
Anderson four-cycle motors, 2½-150 h.p.

THREE-CYLINDER MOTORS
FOUR-CYCLE

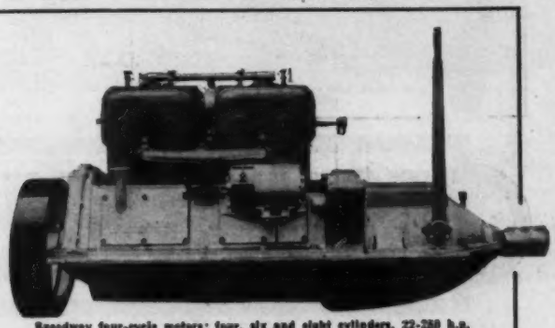
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
6	Nieland	3½x 4	700	450	L.	J.S.
9	Automatic	4¼x 5	500	760	..	...
9	Doman	4 x 5	600	680	T.	J.S.
11	Palmer	4½x 4½	600	700	T.	J.S.
12	Barrie	5 x 5	500	625	L.	J.S.
15	Campbell	5 x 5½	500	880	L.	Batt.
15	Evansville	5 x 6	500	715	H.	J.S.
15	Grizzly Bear	4½x 5½	500	1,200	L.	J.S.
15	Nieland	6 x 7	325	1,500	L.	M.& B.
15	Palmer	5 x 6	600	1,000	T.	J.S.
15	Stork	5 x 6	550	1,150	T.	J.S.M.
15	Yale	5½x 6	500	1,200	L.	J.S.
18	Anderson	5 x 6	500	1,100	T.	J.S.M.
18	Automatic	5½x 7	400	1,425	..	...
18	Barrie	6 x 6	450	600	L.	J.S.
18	Corliss	6 x 7	400	1,800	T.	M. & B.
18	Doman	5 x 6	600	950	T.	J.S.
18	Fadum	5½x 7	500	...	L.	J.S.B.
18	Frisbie	4¾x 5	700	650	H.	J.S. or M. &B.
18	Grizzly Bear	5½x 7	450	1,800	H.	J.S.
18	Lathrop	5¾x 6½	450	1,200	T.	J.S.
18	Lisk	4½x 5	600	325	L.	J.S.B.
18	Loew-Victor	4¾x 5½	600	716	T.	Batt.
18	Robert's Motor	5 x 6	500	950	T.	J.S.M.
20	Monarch	5 x 6	725	...	..	M.&B.B.
20	Nieland	6½x 7½	300	1,800	L.	M.& B.
21	Clifton	6½x 7	400	1,650	L.	J.S.B.
22	Wolverine	6½x 7	400	1,980	...	M.&B.
24	Evansville	6 x 6¾	500	1,275	H.	J.S.
24	Lathrop	5½x 8	375	2,000	T.	J.S.
24	Mianus	6 x 8	400	2,350	T.	M.&B. or J.S.
24	Wood & Chute	6 x 7	400	1,650	..	J.S.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
24	Palmer	6½x 8	400	2,000	T.	J.S.
25	Corliss	6½x 7½	360	2,800	T.	M. & B.
25	Frisbie	6 x 6	550	1,050	H.	J.S. or M. &B.
25	Frisco Standard	6¼x 7	450	2,310	H.	M.&B.
25	Union	6½x 7	500	1,925	..	...
27	Standard	6 x 8	350	1,800	H.&S.	M.&B.
27	Strelmotor	6 x 6	500	1,608	..	M.& B.
28	Blount	5½x 6½	700	1,350	..	...
28	Murray & Tregurtha	6¼x 8	400	2,200	H.	J.S.M.
30	Barrie	6 x 8	400	1,600	L.	J.S.
30	Frisco Standard	6½x 8	360	3,285	H.	M.&B.
30	Monarch	6 x 7	725	...	..	M.&B.B.
30	Nieland	7½x 9	240	2,900	L.	M.& B.
30	Robert's Motor	6 x 8	500	1,260	T.	J.S.M.
30	Strang	6¼x 7	650	1,800	H.	J.S.
30	Yale	7 x 9	375	2,800	L.	J.S.
32	Atlas	7 x 8¼	400	4,800	..	...
32	Wolverine	7½x 9	350	3,490	..	M.&B.
33	Evansville	7 x 9	350	2,375	H.	J.S.
35	Corliss	7¼x 9	330	4,000	T.	M. & B.
35	Palmer	7½x10	400	3,500	T.	J.S.
35	Union	7½x 9	300	4,825	T.	M.&B.M.
36	Bridgeport	7½x 9	375	3,200	L.	J.S.M.
36	Doman	7 x 9	400	2,800	T.	J.S.
37	Blount	5½x 8	700	1,500	..	...
37½	Anderson	7 x 8½	450	1,200	T.	J.S.M.
37½	Automatic	7½x 9	375	3,465	..	...
40	Atlas	9½x11	300	5,175	..	...
40	Atlas	8 x10	375	5,450	..	...
40	Corliss	8 x10	330	4,750	T.	M. & B.
40	Frisco Standard	8 x10	320	4,875	H.	M.&B.
40	Union	8¼x10½	330	6,390	T.	M.&B.M.
42	Wolverine	8½x 9	350	3,660	..	M.&B.

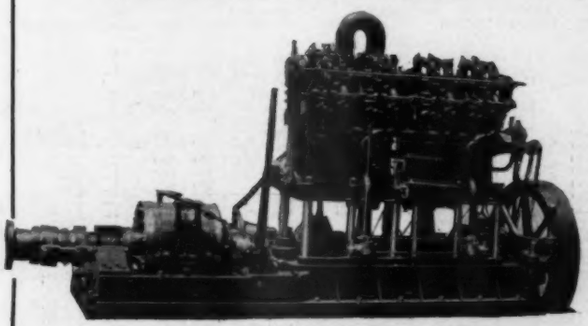
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
45	Frisbie	7 x 9	500	2,350	H.	J.S. or M &B.
45	Parsons	6½x 8	600	3,830	L.	J.S.M.
50	Corliss	9 x10½	300	6,000	T.	M. & B.
50	Frisco Standard	8¼x10½	300	6,480	H.	M.&B.
50	Fulton	8 x 9	400	5,000	H.	Diesel
50	Union	8¼x10½	325	7,000	T.	M.&B.M
54	Monarch	8 x 9	500	...	..	M.&B.B.
55	Atlas	9 x10¼	350	6,250	..	...
56	Vulcan	8¾x10½	400	4,200	T.	J.S.
60	Union	9 x11	320	7,400	T.	M.&B.M.
60	Wolverine	9½x12	300	6,327	..	M.&B.
65	Clifton	8½x11	400	5,000	L.	J.S.B.
75	Anderson	9¼x11	400	4,300	T.	J.S.M.
75	Automatic	10 x14	275	8,000	..	...
75	Yale	10¼x12	350	12,200	L.	M.& B.
80	Atlas	10½x12	300	10,500	..	...
80	Corliss	10½x12	280	10,600	T.	M. & B.
80	Frisco Standard	9¾x12	280	9,105	H.	M.&B.
80	Union	10 x12	310	9,500	T.	M.&B.M
80	Wolverine	11 x12	300	6,747	..	M.&B.
84	Monarch	10 x10	450	...	..	M.&B.B
90	Automatic	10½x15	250	12,000	..	...
90	Nisco Diesel	9 x12½	350	12,500	H.	Diesel
100	Atlas	12 x12	300	11,250	..	...
100	Corliss	12 x14	260	16,000	T.	M. & B.
100	Union	12 x15	280	17,600	T.	M.&B.M.
110	Atlas	12 x16	250	17,500	..	...
110	Frisco Standard	11¾x15	250	13,800	H.	M.&B.
110	Wolverine	12½x14	300	10,117	..	M.&B.
125	Atlas	13 x16	250	...	..	...
125	Corliss	13½x15½	240	22,000	T.	M. & B.
125	Union	14 x15	260	23,300	T.	M.&B.M
180	Nisco Diesel	13 x18	240	31,000	H.	Diesel



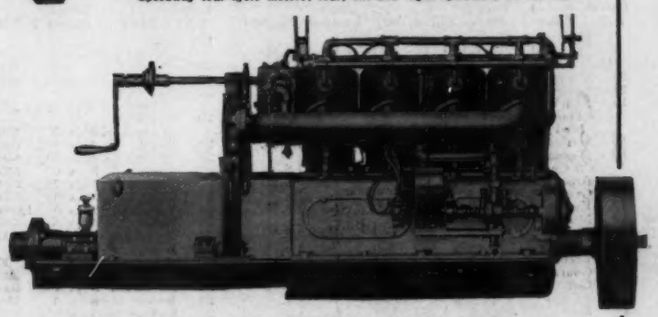
Campbell four-cycle motors, 5-100 h.p., 500-800 R.P.M.



Speedway four-cycle motors: four, six and eight cylinders, 22-250 h.p.

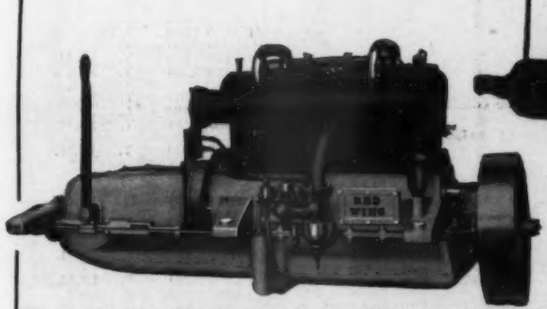


Heavy duty San Francisco Standard motors, 4-175 h.p.

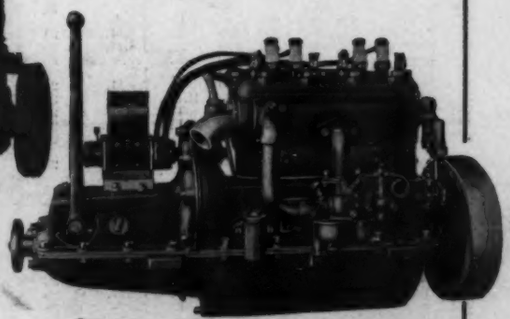


Doman medium and heavy duty and high-speed models, 6-90 h.p.

Fairbanks-Morse motors, 7-100 h.p.



Red Wing Thorobred. This make is built in two and four-cycle models, 3-40 h.p.

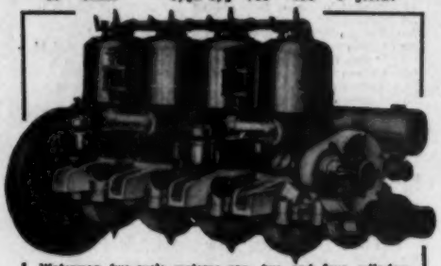


Ferro motors for 1916, two and four-cycle, 3-55 h.p.

FOUR-CYLINDER MOTORS

TWO CYCLE

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
12	Ontario	3⅛x 3½	900	350	..	J.S.B.
14	Barrie	3⅛x 3¾	700	500	..	J.S.
15	Eagle	3¾x 4	650	558	..	J.S.M.
18	Caille	2¾x 3½	...	375	3	J.S.B.
18	Caille	3¼x 3½	700	490	3	J.S.B.

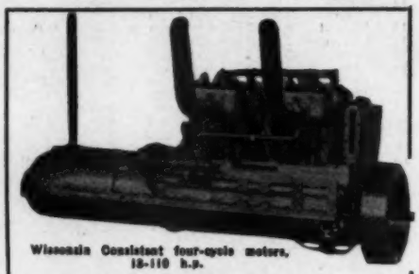


Waterman two-cycle motors; one, two and four cylinders

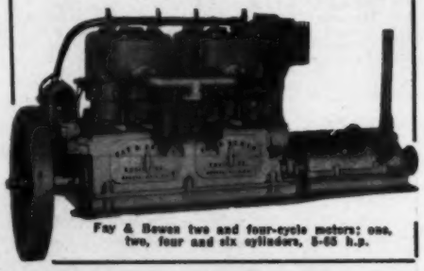
Peerless four-cycle motors, two and four cylinders, 9-80 h.p.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
18	Hettinger	4½x 6	600	1,000	..	J.S.
20	Capital	3½x 3½	1,200	300	..	...
20	Leary	3¾x 3¾	800	463	..	J.S.B.
20	Penrose	4 x 5	700	55	Sp'l	J.S.
20	Roberts	4 x 3½	1,000	445	..	J.S.
20	Simplex	3½x 4½	900	...	Sp'l	...
20	Valveless	3½x 3½	720	310	..	J.S.
20	Vanguard	4 x 4	700	634	..	...
20	Watertown	3¾x 4½	1,000	380	..	J.S.B.
24	St. Lawrence	4 x 4½	800	450	..	J.S.
24	Waterman	4 x 4	900	300	3	J.S.
25	Eagle	4½x 5	600	875	..	J.S.M.
25	Foreman	4¼x 4¼	800	550	..	J.S.M.
25	Mohawk	4½x 4½	700	825	2	J.S.B.
26	Essex (Canadian)	5 x 6	450	1,525*	..	M.&B.
28	Ontario	5 x 5	600	900	..	J.S.B.
30	American	4¼x 4½	900	625	..	J.S.
30	Caille	4¾x 4½	800	650	3	J.S.M.
30	Leech	3½x 4	1,800	276	Sp'l	J.S.M.
30	S.H.M.	4½x 5	750	620	..	...
35	St. Lawrence	4½x 5	800	600	..	J.S.
36	Hettinger	6½x 8	450	2,800	..	J.S.
40	Pierce-Budd	4 x 4	1,800	300*	..	J.S.M.
40	Roberts	4½x 5	1,000	600	..	J.S.
40	Smalley	4½x 4½	...	...	..	J.S.
40	Wisconsin	4¾x 4½	1,100	555	..	...
45	Penrose	4 x 4	1,600	425	Sp'l	J.S.
50	Hettinger	7½x 9	375	4,000	..	J.S.
50	Johnson	4 x 5	1,250	175*	Sp'l	J.S.M.
50	Leighton	5 x 4½	1,000	450	..	J.S.B. &M.
50	Smalley	5½x 5½	...	...	..	J.S.
60	Fairbanks-Morse	8½x10	400	7,520	3	J.S.
60	Robert's Motor	5¼x 6½	1,000	650	3	J.S.M.
65	Roberts	5 x 5	1,200	400	..	J.S.
100	Fairbanks-Morse	10½x12½	340	12,000	3	J.S.
150	Mercury	7½x 7	900	1,200	..	J.S.M.
240	Southwark-Harris	9 x13	300	21,500*	..	Diesel

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
450	Southwark-Harris	12 x 21	200	47,000*	..	Diesel
800	Southwark-Harris	16 x 28	150	...	..	Diesel



Wisconsin Consistent four-cycle motors, 18-110 h.p.



Fay & Bowen two and four-cycle motors; one, two, four and six cylinders, 5-65 h.p.

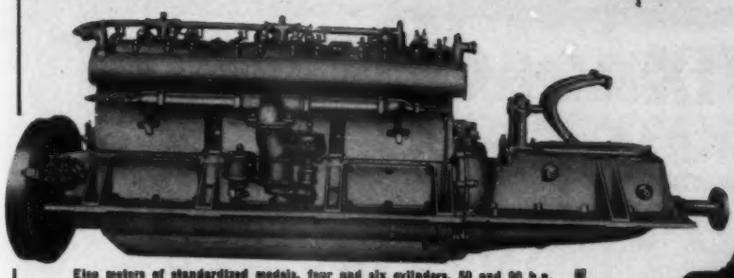
FOUR-CYLINDER MOTORS

FOUR CYCLE

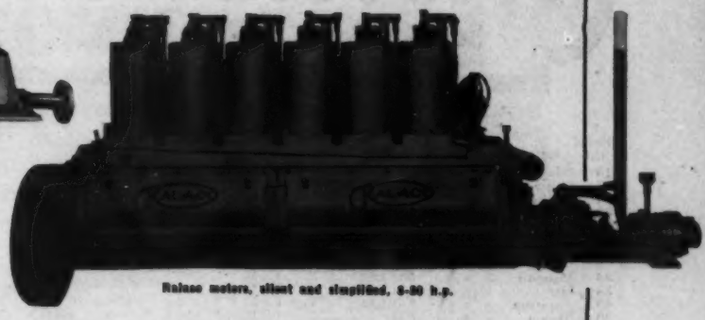
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
7	Hunter	2¾x 4	800	250	L.	...
8	Universal	2½x 3½	1,200	250	L.	J.S.M.
8½	Hunter	3½x 4	800	275	L.	...
10	Doman	2¾x 3½	1,500	225	L.	J.S.
10	Ferro	2¾x 4	1,000	280	L.	J.S.B.
10	Red Wing Thoro-bred	4½x 5	800	550	T.	J.S.M.
10	Sterling	2¾x 4½	1,000	225	L.	J.S.M.
12	Alexander & Cox	4 x 5	600	...	L.	J.S.
12	Aristocrat	2½x 4	1,200	290	L.	J.S.M.
12	Gray	3 x 4	1,000	800	L.	J.S.
12	Kermath	3½x 4	1,000	420	L.	J.S.M.
12	Murray & Tregurtha	4½x 5	550	900	H.	J.S.M.
12	Niagara	3½x 4½	600	550	T.	J.S.M.
14	Brennan	3½x 4	900	664	L.	J.S.M.
14	Guarantee	3¾x 4	800	400	L.	...
14	L-A	3¾x 4½	800	350	L.	J.S.M.
14	Palmer	4½x 4½	600	850	T.	J.S.
14	Rice	3½x 4	1,000	330	L.	J.S.
15	Able	2¾x 4	1,500	180	T.	J.S.M.
15	Evansville	4 x 5	500	625	H.	J.S.M.
15	Miller	3½x 5	650	450	..	J.S.M.
15	Morton	3½x 4	1,000	425	H.	J.S.M.
15	Niagara	3½x 4½	1,000	475	T.	J.S.M.
16	Barrie	3 x 5	500	700	L.	J.S.
16	Cady	3¾x 4	...	325*	..	J.S.
16	Fadum	4½x 5	600	...	L.	J.S.B.
16	Kermath	3¾x 4	1,000	435	L.	J.S.M.
16	Motorgo	3¾x 4½	800	300	..	J.S.M.
16	Regal	4 x 4½	800	680	L.	...
16	Vulcan	4½x 6	550	900	T.	J.S.
17	Sterling	4¾x 5½	600	580	L.	J.S.M.
18	Carl	4½x 5	900	500	H.&S.	...
18	Doman	4 x 5	700	800	T.	J.S.
18	Missouri	4¾x 5	500	750	L.	J.S.B.
18	Wisconsin Consist-ent	3¾x 5	1,000	490	L.	J.S.M.
20	Barrie	6 x 8	400	1,400	L.	J.S.
20	Brennan	4 x 5	700	550	..	...
20	Buffalo	3¾x 5	800	525	L.	D.J.S.
20	Campbell	5 x 5½	500	925	L.	J.S.M.
20	Chesa-peake	4½x 5	700	600	L.	J.S.
20	Clifton	5 x 6	500	1,100	L.	J.S.B.
20	Evansville	5 x 6	500	900	H.	J.S.B.
20	Fay & Bowen	3½x 5	1,100	480	T.	J.S.M.
20	Gray	3½x 4½	1,150	654	L.	J.S.
20	Grizzly Bear	4½x 5½	500	1,400	L.	J.S.
20	Harris	5 x 5½	550	...	..	J.S.
20	Holliday	5 x 6	500	1,500	L.	Batt.
20	Kermath	4 x 4	1,000	450	L.	J.S.M.

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
20	Loew-Victor	3¾x 5	1,000	500	L.	J.S.M.
20	Palmer	5 x 6	600	1,250	T.	J.S.
20	Ralaco	4 x 6	600	1,375	H.	J.S.M.
20	Red Wing Thorobred	3½x 4½	1,200	375	L.	J.S.M.
20	Red Wing Thorobred	4½x 5	800	800	T.	J.S.M.
20	Regal	4½x 5½	600	900	L.	...
20	Sterling	4¾x 5½	600	840	T.	J.S.M.
20	Stork	5 x 6	550	1,600	T.	J.S.M.
20	Vulcan	5½x 7	500	1,200	T.	J.S.
20	Yale	5½x 6	500	1,600	L.	J.S.
22	Brennan	4 x 5	1,000	400	..	...
22	Miller	4½x 6	600	1,000	..	J.S.M.
22	Niagara	4¾x 5½	600	1,300	T.	J.S.M.
22	Wisconsin Consistent	3¾x 5	1,000	505	L.	J.S.M.
24	Anderson	5 x 6	500	1,350	T.	J.S.M.
24	Automatic	5½x 7	400	1,800	..	...
24	Barrie	6 x 6	450	900	L.	J.S.
24	Buffalo	5 x 6½	400	1,700	L.	D.J.S.
24	Fadum	5½x 7	500	...	L.	J.S.B.
24	Lamb	5¼x 6	500	1,180	L.	J.S.B.M.
24	Lathrop	5½x 6½	450	1,500	T.	J.S.
24	Missouri	5 x 6	500	980	L.	J.S.M.
24	Murray & Tregurtha	5 x 6	650	1,000	H.	J.S.M.
24	Robert's Motor	5 x 6	500	1,180	T.	J.S.M.
24	Standard	5 x 6¼	400	1,600	..	M.&B.
25	Capitol	3¾x 5½	1,000	525	L.	J.S.M.
25	Dice (H-O)	5½x 5	750	...	L.	J.S.B.
25	Erd	4 x 5	800	640	H.	J.S.M.
25	Guarantee	4¼x 5½	600	900	L.	...
25	Harris	5½x 6½	500	...	..	J.S.
25	Holmes	4½x 6¼	700	1,000	L.	J.S.M.
25	Loew-Victor	4¾x 5½	600	996	T.	J.S.B.M.
25	Morris-town	4¼x 5	850	525	..	J.S.M.
25	Standard	4 x 5½	900	500	H.&S.	M.&B.
25	Sterling	5½x 8	500	1,600	T.	J.S.M.
25	Sterling	3¾x 5½	1,000	550	L.	J.S.M.
25	Wisconsin Consistent	4 x 5	1,000	555	L.	J.S.M.
26	Lisk	4½x 5	600	700	L.	J.S.M.
27	Scripps	4½x 5	800	910	L.	J.S.M.
28	Carl	5 x 6	850	850	H.&S.	...
28	Campbell	5½x 6½	500	1,225	L.	J.S.M.
28	Clifton	6½x 7	400	2,300	L.	J.S.B.
28	Fulton	4 x 5	...	490	L.	J.S.M.
28	Parsons	4½x 6	850	1,470	L.	J.S.M.
28	Red Wing Thorobred	5 x 6	800	1,100	T.	J.S.M.
28	Speedway	4 x 4½	1,400	495	L.	J.S.M.

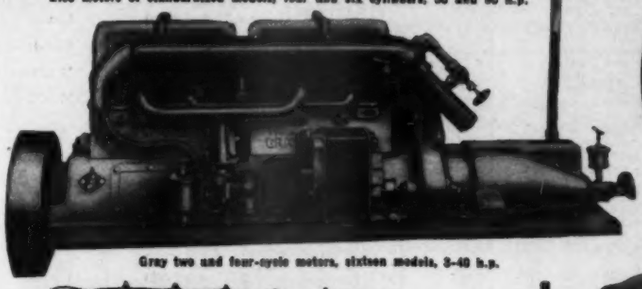
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
30	Brennan	4½x 5	700	700	..	...
30	Buffalo	4¾x 5	800	690	L.	D.J.S.
30	Buffalo	6 x 7½	350	2,200	L.	D.J.S.
30	Chesa-peake	5 x 6	500	2,000	L.	J.S.
30	Corliss	6 x 7	450	2,400	T.	M. & B.
30	Doman	5 x 6	650	1,100	T.	J.S.
30	Frisbie	4¾x 5	800	725	H.	S.orD.J.S
30	Fay & Bowen	4 x 5¼	1,100	600	T.	J.S.M.
30	Gray	4¾x 5¼	1,000	767	L.	J.S.
30	Holliday	6 x 7	500	2,000	L.	Batt.
30	Lamb	3¾x 5¼	1,200	575	T.	J.S.B.M.
30	Lamb	4½x 6¼	550	1,490	H.	J.S.B. &M.
30	Miller	5¼x 6	600	1,300	..	...
30	Monarch	5 x 6	725	...	..	M.&B.B.
30	Murray & Tregurtha	5½x 7	425	1,900	H.	J.S.M.
30	Niagara	4¾x 5½	1,000	710	T.	J.S.M.
30	Niagara	5½x 6½	600	1,525	T.	J.S.M.
30	Peerless	4 x 6	1,000	675	T.	J.S.M.
30	Ralaco	5 x 7	500	2,200	H.	J.S.M.
30	Regal	5¼x 6¼	600	1,425	L.	...
30	Speedway	4½x 5	1,000	525	L.	J.S.M.
30	Vulcan	6½x 7¼	475	2,020	T.	J.S.
30	20th Century	5¼x 7¼	400	1,800	H.&S.	J.S.
32	Capitol	4¾x 5½	1,000	...	..	J.S.M
32	Evansville	6 x 6¾	500	1,480	H.	J.S.B.
32	Fulton	4¾x 5	...	540	T.	J.S.M.
32	Hall	5½x 6¼	600	1,800	L.	...
32	Lathrop	5½x 8	375	2,500	T.	J.S.
32	Mercury	5¾x 5	900	640	T.	J.S.M.
32	Mianus	6 x 8	400	3,100	T.	M.B.& J.S.
32	Palmer	6½x 8	400	2,400	T.	J.S.
32	Regal	4¾x 5½	1,000	725	L.	...
32	Stork	6 x 7	450	2,350	T.	J.S.M.
32	Wisconsin Consistent	4¼x 5	1,000	610	T.	J.S.M.
32	Wood & Chute	6 x 7	400	2,000	..	J.S.
33	Red Wing Thorobred	3¾x 5¼	1,400	575	H.	J.S.M.
35	Atlas	6 x 7	550	2,450	..	...
35	Brennan	4½x 5	1,200	500	..	...
35	Brennan	5 x 5	700	850	..	...
35	Erd	4 x 5	1,400	450	H.	J.S.M.
35	Fay & Bowen	4½x 5½	1,000	700	T.	J.S.M.
35	Ferro	4 x 6	1,000	920	H.	J.S.B.
35	Guarantee	5 x 5½	600	1,200	L.	...
35	Miller	5¼x 7½	450	1,600	..	J.S.M.
35	Sterling	5½x 6¾	600	1,200	T.	J.S.M.
35	Sterling	4½x 5½	1,000	620	T.	J.S.M.
35	Stork	4½x 5½	800	800	T.	J.S.M.



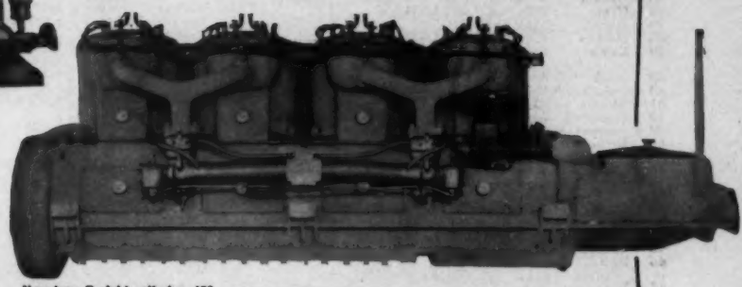
Elco motors of standardized models, four and six cylinders, 50 and 90 h.p.



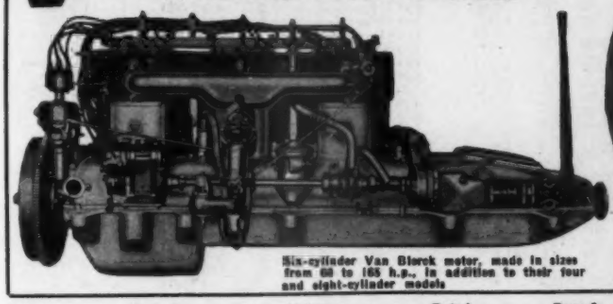
Reliance motors, silent and simplified, 6-90 h.p.



Gray two and four-cycle motors, sixteen models, 3-40 h.p.



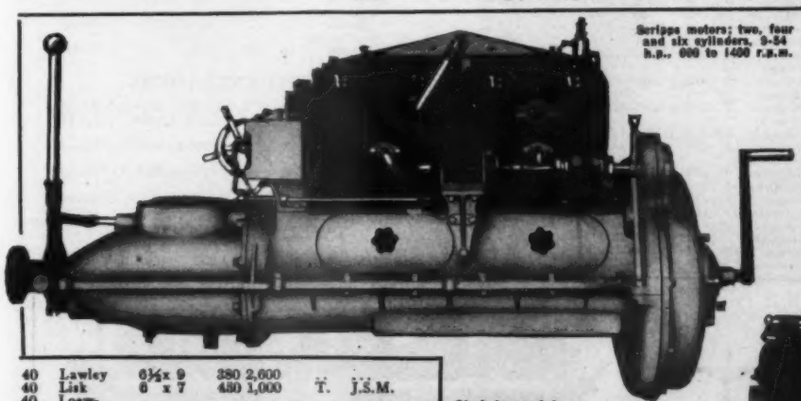
New type F eight-cylinder, 180-200 h.p. Sterling motor for 1916, making their twenty-third model, which range in horsepower from 8 to 300



Six-cylinder Van Blerck motor, made in sizes from 60 to 165 h.p., in addition to their four and eight-cylinder models

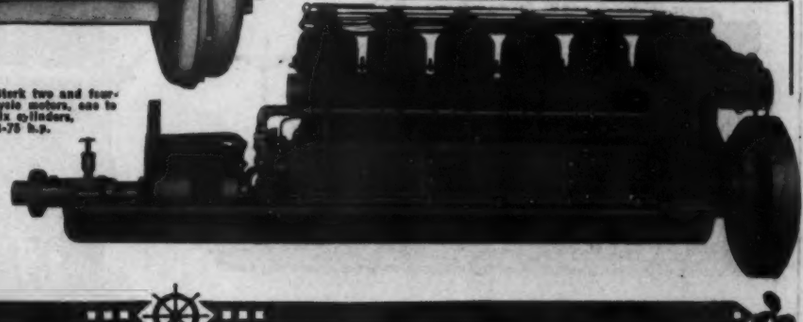
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
36	Alexander & Cox	5½x 6½	600	...	L.	J.S.
36	Red Wing Thorobred	4 7/16x 5	1,400	500	L.	J.S.M.
36	Red Wing Thorobred	6 x 6½	800	1,300	T.	J.S.M.
36	Regal	6½x 7	500	2,500	L.	...
36	Scripps	4½x 5	1,400	725	L.	M.&B.
37	Standard	6 x 8	350	2,800	H.&S.	M.&B.
38	Blount	5½x 6½	700	1,500	..	...
40	Atlas	6½x 7½	500	3,850	..	...
40	Barrie	6 x 8	400	1,800	..	J.S.
40	Campbell	6½x 7½	800	1,750	L.	J.S.M.
40	Carl	6 x 8	600	1,000	H.&S.	...
40	Corliss	6½x 7½	400	3,900	T.	M. & B.
40	Doman	4 x 6	1,200	600	H.	J.S.
40	Frisbie	6 x 6	650	1,200	..	S.or D. J.S.
40	Fulton	4¾x 5½	700	700	T.	J.S.M.
40	Hall	5½x 8½	400	2,200	L.	...
40	Imperial	6½x 8	500	....	..	...
40	Knox	7 x 8	...	3,200	..	M.&B.
40	Lamb	6¾x 7	450	2,150	L.	J.S.B. &M.
40	Robert's Motor	6 x 8	500	1,640	T.	J.S.M.
40	Strang	6½x 7	650	2,500	H.	J.S.
40	Strelmotor	6 x 6	500	1,951	..	M.& B.
40	Wisconsin Consistent	4¾x 5	1,000	785	T.	J.S.M.
44	Evansville	7 x 9	350	2,950	H.	J.S.B.
45	Blount	5½x 6½	800	1,200	..	...
45	Buffalo	7 x 9	350	3,400	L.	D.J.S.
45	Doman	6 x 6	650	1,480	T.	J.S.
45	Doman	6 x 8	500	1,475	T.	J.S.
45	Fay & Bowen	5 x 6¼	1,000	800	T.	J.S.M.
45	Harris	6½x 8½	450	...	..	J.S.
45	Miller	6 x 8½	400	2,500	..	J.S.M.
45	Niagara	5½x 6½	1,000	990	T.	J.S.M.
45	Sterling	6½x 9	500	2,850	H.&S.	J.S.B. &M.
45	Vulcan	7½x 8½	425	3,400	T.	J.S.
46	Blount	5½x 8	600	1,700	..	...
46	Speedway	4½x 5½	1,200	850	L.	J.S.M.
46	Wisconsin Consistent	5.1x 5½	1,000	800	T.	J.S.M.
48	Bridgeport	7½x 9	375	4,500	L.	J.S.M.
48	Doman	7 x 9	400	2,900	T.	J.S.
48	Speedway	6 x 6	800	1,700	L.	J.S.M.
50	Anderson	7 x 8½	450	2,200	T.	J.S.M.
50	Automatic	7½x 9	375	4,430	..	...
50	Corliss	7¾x 9	350	5,500	T.	M. & B.
50	Brennan	5½x 6	700	1,100	..	...
50	Capitol	5¼x 6½	1,000	....	..	J.S.M.
50	Doman	5 x 6	1,200	850	T.	J.S.
50	Elco	5 5/16x 6	1,250	760	L.	D.J.S.
50	Holliday	7 x 9	425	3,500	L.	Batz.
50	Holmes	6 x 9	500	2,400	L.	J.S.M.
50	Maxi-motor	4½x 5	1,350	320	H.	J.S.M.
50	Miller	7 x 7	500	2,600	..	J.S.M.
50	Palmer	7½x10	400	4,200	T.	J.S.
50	Peerless	5¾x 7	700	1,400	T.	J.S.M.
50	Ralaco	7 x 9	400	4,800	H.	M.&B.
50	Regal	7½x 9	450	4,000	L.	...
50	Sterling	4½x 5½	1,500	520	T.	J.S.M.
50	Stork	7½x 9	400	4,300	T.	J.S.M.
50	Stork	5¾x 6½	800	850	T.	J.S.M.
50	20th Century	6½x 8½	400	2,600	H.&S.	J.S.
50	Winton	6½x 9	450	4,200	L.	J.S.M.
53	Herschell-Spillman	5¾x 6	1,000	1,000*	T.	J.S.M.
55	Atlas	8 x10	375	5,950	..	...
55	Niagara	6¼x 6½	1,000	1,075	T.	J.S.M.
55	Robert's Motor	7 x 9	450	2,800	T.	J.S.M.
55	Sterling	5½x 6¾	1,000	900	T.	J.S.M.
55	Van Blerck	5½x 6	1,000	1,140	T.	D.J.S.
56	Clay	7½x 9	375	5,450	H.	J.S.
60	Buffalo	5½x 7	900	1,400	L.	D.J.S.
60	Brennan	6 x 6	700	1,200	..	...
60	Corliss	8 x10	350	6,300	T.	M. & B.
60	Frisbie	7 x 9	500	2,900	H.	S.or D. J.S.
60	Mercury	5¼x 6	900	680	T.	J.S.M.
60	Murray & Tregurtha	7½x10	375	4,000	H.	J.S.M.
60	Niseco Diesel	7 x 9½	450	8,000	H.	Diesel
60	Parsons	6½x 8	600	4,350	L.	J.S.& B.& M.
60	Reliance	6 x 6½	...	1,400	..	...
60	Wisconsin Consistent	5¼x 7	900	1,050	T.	J.S.M.
65	Miller	7 x10	350	3,500	..	J.S.M.
65	Speedway	6½x 8	650	2,250	L.	J.S.M.
68	Fulton	5¾x 7	...	1,000	T.	J.S.M.
68	Herschell-Spillman	6½x 8	1,000	1,800*	T.	J.S.M.
70	Clay	8½x 9	375	6,050	H.	J.S.
70	Fulton	8 x 9	400	6,800	H.	Diesel

(Continued on page 84)



Scripps motors; two, four and six cylinders, 9-54 h.p., 600 to 1400 r.p.m.

40	Lawley	6½x 9	380	2,600	..	...
40	Lisk	6 x 7	450	1,000	T.	J.S.M.
40	Loew-Victor	4¾x 5½	1,000	766	T.	J.S.B. &M.
40	Loew-Victor	6 x10	400	3,300	T.	M.&B.M.
40	Miller	6 x 7½	450	2,200	..	J.S.M.
40	Missouri	6 x 8	400	2,500	L.	J.S.M.
40	Monarch	6 x 7	725	...	..	M.&B.B.
40	Murray & Tregurtha	6½x 8	400	2,500	H.	J.S.M.
40	Niagara	6¼x 6½	600	1,650	T.	J.S.M.
40	Peerless	5 x 6	1,000	725	T.	J.S.M.
40	Red Wing Thorobred	4½x 5	1,400	750	L.	J.S.M.
40	Reliance	4¾x 5¾	...	850	..	...



Stork two and four-cycle motors, one to six cylinders, 3-75 h.p.

MOTORS WITH SIX OR MORE CYLINDERS
FOUR CYCLE

SIX CYLINDERS

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Port	Ignition
15	Winton	3 x 4	850	600	L.	J.S.M.
26	Barrie	5 x 5	500	750	L.	J.S.
30	Stork	5 x 6	550	2,100	T.	J.S.M.
35	Gray	3¾x 5¼	1,000	752	L.	J.S.
36	Barrie	6 x 6	450	1,000	L.	J.S.
36	Loew-Victor	4¾x 5½	600	1,324	T.	J.S.B. &M.
36	Missouri	5 x 6	500	1,800	L.	J.S.M.
38	Lisk	4¾x 5	600	900	L.	J.S.M.
40	Anderson	5 x 6	650	1,650	T.	J.S.M.
40	Fadum	5½x 7	500	...	L.	J.S.M.
40	Gray	3¾x 5¼	1,000	1,050	L.	J.S.
40	Harris	5½x 6½	500	...	..	J.S.
40	Holmes	4½x 6¼	700	1,300	L.	J.S.M.
40	Lamb	5¼x 6	550	1,650	L.	J.S.B. &M.
40	Stork	6 x 7	450	3,300	..	J.S.M.
40	Vulcan	5¼x 7	550	2,020	T.	J.S.
41	Scripps	4½x 5	800	1,200	L.	J.S.M.
43	Campbell	5½x 6½	500	1,650	L.	J.S.M.
43	Parsons	4½x 6	850	1,770	L.	J.S.M.
45	Brennan	4½x 8	700	1,000	..	...
45	Doman	5 x 6	650	1,500	T.	J.S.
45	Fulton	4¼x 6	...	750	T.	J.S.M.
45	Lamb	4½x 6¼	600	1,890	H.	J.S.B. &M.
45	Monarch	5 x 6	725	...	..	M.&B.B.
45	Ralaco	5 x 7	500	2,700	H.	J.S.M.
45	Speedway	4½x 5	1,000	1,130	L.	J.S.M.
45	Speedway	4½x 5	1,000	1,440	L.	J.S.M.
45	20th Century	5¼x 7¼	500	2,450	H.&S.	J.S.
45	Wisconsin Consistent	4¼x 5	1,000	825	T.	J.S.M.
48	Niagara	5½x 6½	600	2,145	T.	J.S.M.
50	Brennan	4½x 8	1,200	775	..	...
50	Corliss	6 x 7	500	3,250	T.	M. & B.
50	Frisbie	4¾x 8	1,000	985	H.	S.orD. J.S.
50	Fay & Bowen	4½x 5½	1,000	925	T.	J.S.M.
50	Hall	5½x 6¼	600	2,400	L.	...
50	Lamb	3¾x 5¼	1,200	765	T.	J S B & M
50	Sterling	5½x 8	550	3,700	L.	J.S.M.
50	Sterling	5½x 6¾	600	1,500	T.	J.S.M.
50	Stork	4½x 5½	800	1,100	T.	J.S.M.
54	Scripps	4½x 8	400	950	L.	J.S.M.
54	Standard	6 x 8	350	3,200	H.&S.	M.&B.
55	Ferro	4 x 6	1,000	1,150	H.	J.S.M.
55	Wisconsin Consistent	4¾x 5½	1,600	1,200	T.	J.S.M.
56	Blount	5½x 6½	700	2,150	..	...
60	Barrie	6 x 8	400	2,200	L.	J.S.
60	Campbell	6½x 7½	500	2,275	L.	J.S.M.
60	Clifton	6½x 7	500	3,300	L.	J.S.M.
60	Curtis	4 x 5	1,200	...	H.	J.S.M.
60	Doman	6 x 6	650	1,850	T.	J.S.
60	Doman	6 x 8	500	2,300	T.	J.S.
60	Fulton	4¼ x5½	...	1,025	T.	J.S.M.
60	Hall	5½x 8½	400	3,000	L.	...
60	Lamb	6¾x 7	450	2,900	L.	J.S.B. &M.
60	Lawley	6½x10	400	3,800	..	...
60	Lisk	6 x 7	500	1,200	T.	J.S.M.
60	Loew-Victor	4¾x 5½	1,000	1,050	T.	J.S.B. &M.
60	Loew-Victor	6 x10	400	4,400	T.	M.&B.M.
60	Missouri	6 x 8	400	3,000	L.	J.S.M.
60	Murray & Tregurtha	6½x 8	450	3,000	H.	J.S.M.
60	Monarch	6 x 7	725	...	..	M.&B.B.
60	Reliance	4⅞x 5¼	...	1,100	..	...
60	Standard	6 x 6½	700	1,500	H.&S.	M.&B.
65	Blount	5½x 6½	800	1,600	..	...
65	Corliss	6½x 7½	450	4,900	T.	M. & B.
65	Fay & Bowen	5 x 6¼	1,000	1,150	T.	J.S.M.
65	Harris	6½x 8½	450	...	..	J.S.
65	Niagara	5½x 6½	1,000	1,465	T.	J.S.M.
65	20th Century	6¼x 8½	450	3,700	H.&S.	J.S.
70	Buffalo	7 x 9	350	4,850	L.	D.J.S.
70	Capitol	5¼x 6½	1,000	...	..	J.S.M.
70	Niagara	6¾x 6½	600	2,350	T.	J.S.M.
70	Robert's Motor	7 x 9	450	3,400	T.	J.S.M.
70	Speedway	4¼x 5½	1,200	1,075	L.	J.S.M.
70	Sterling	6¾x 9	500	3,600	H.&S.	J.S.B. &M.
70	Wisconsin Consistent	5.1x 5½	1,000	1,225	T.	J.S.M.
72	Doman	7 x 9	400	3,100	T.	J.S.
75	Automatic	7½x 9	375	6,500	..	...
75	Doman	5 x 6	1,000	1,100	T.	J.S.
75	Frisbie	6 x 6	800	1,600	H.	S.orD. J.S.
75	Holmes	6 x 9	500	3,300	L.	J.S.M.
75	Stork	7½x 9	400	6,000	T.	J.S.M.
75	Stork	5½x 6½	800	1,300	T.	J.S.M
78	Blount	5½x 8	700	2,400	..	...
80	Palmer	7½x10	300	5,600	T.	J.S.
80	Ralaco	7 x 9	400	6,600	H.	J.S.M.or M.&B.
80	Speedway	6 x 6	800	1,800	L.	J.S.M.
80	Winton	6½x 9	450	5,400	L.	J.S.M.
85	Sterling	5½x 6¾	1,000	1,175	T.	J.S.M.
85	Van Blerck	5½x 6	1,000	1,425	T.	D.J.S.
89	Herschell-Spillman	5¾x 6½	1,000	1,700*	T.	J.S.M.
90	Doman	6 x 6	1,000	1,650	T.	J.S.
90	Elco	5½x 6	1,250	1,250	L.	D.J.S.
90	Maximotor	4½x 5	1,350	450	H.	J.S.M.
90	Niagara	6¼x 6½	1,000	1,550	T.	J.S.M.
90	Nlseco Diesel	7 x 9½	450	10,000	H.	Diesel
90	Parsons	6½x 8	600	5,400	L.	J.S.B. & M.
90	Reliance	6 x 6½	...	1,800	..	...
90	Wisconsin Consistent	5¼x 7	900	1,450	T.	J.S.M.
100	Campbell	6½x 6½	800	1,300	L.	J.S.M.
100	Corliss	8 x10	375	8,250	T.	M. & B.
100	Fulton	5¼x 7	...	1,250	T.	J.S.M.
100	Fulton	8 x 9	400	9,000	H.	Diesel
100	Harris	8 x10	400	...	..	J.S.
100	Mercury	6¼x 6½	900	1,250	T.	J.S.M.
100	Murray & Tregurtha	7½x10	400	5,000	H.	J.S.M.
100	Robert's Motor	8 x10½	400	7,000	T.	J.S.M.
100	Robert's Motor	5¾x 6	1,200	800	H.	J.S.M.
100	Standard	8 x10	350	8,000	H.&S.	M.&B.
100	Speedway	6½x 8	650	3,100	L.	J.S.M.
100	20th Century	8 x10	425	5,500	H.&S.	J.S.
101	Herschell-Spillman	6¾x 8	1,000	2,300*	T.	J.S.M. M.&B.B.
108	Monarch	8 x 9	300	...	T.	D.J.S.
110	Sterling	5½x 6¾	1,000	1,600	T.	D.J.S.
110	Wisconsin Consistent	5¾x 7	900	1,500	T.	J.S.M.
115	Speedway	6¾x 8½	600	5,000	L.	J.S.M.
120	Maximotor	5 x 6	1,350	585	H.	J.S.M.
125	Brennan	7 x 8	500	2,500	..	...
125	Corliss	9 x10½	350	12,300	T.	M. & B.
125	Hall	7½x12	350	8,000	L.	...
125	Harris	9 x11	375	...	..	J.S.
125	Murray & Tregurtha	8½x11	325	6,200	H.	J.S.M.
125	Speedway	7 x 8	650	2,550	L.	J.S.M.
125	Speedway	5¾x 7	1,200	1,800	L.	J.S.M.
125	Winton	8 x11	425	9,500	L.	J.S.M.
130	Van Blerck	5½x 6	1,400	1,280	T.	D.J.S.
135	Sterling	5½x 6¾	1,500	1,150	T.	D.J.S.
140	Speedway	7 x 7	1,000	2,250	L.	J.S.M.
150	Anderson	9¼x11	400	7,500	T.	J.S.M.
150	Automatic	10 x14	275	15,300	..	...
150	Automatic	10½x15	250	20,000	..	...
150	Buffalo	10 x12	300	12,800	L.	J.S.M.& M.&B.B.
150	Hall	8 x12	400	10,000	L.	...
150	Standard	8½x11	350	5,800	H.&S.	M.&B.
150	Winton	6½x 9	900	3,600	L.	J.S.M.
160	Speedway	8½x10	450	5,900	L.	J.S.M.
165	Van Blerck	5½x 6	1,700	1,280	T.	D.J.S.
168	Monarch	10 x10	450	...	..	M.&B.B.
175	Corliss	10½x12	325	22,400	T.	M. & B.
180	Nlseco Diesel	9 x12½	350	21,500	H.	Diesel
180	Robert's Motor	7 x 7½	1,000	1,200	T.	J.S.M.
190	Loew-Victor	7.6 x 8½	900	2,780	T.	J.S.M.
200	Automatic	12 x16	225	24,000	..	...
200	Murray & Tregurtha	10 x13	325	11,000	H.	J.S.M.
200	Speedway	8 x 8	1,000	2,800	L.	J.S.M.
200	Winton	9½x14	370	18,000	L.	D.J.S.
200	Wolverine	11 x15	300	15,700	L.	M.&B.M.
225	Speedway	7½x 8	1,100	2,800	L.	J.S.M.
250	Automatic	13½x18	225	26,000	..	...
250	Corliss	12 x14	300	31,200	T.	M. & B.
250	Speedway	11 x12	450	11,400	L.	J.S.M.
300	Corliss	13½x15½	275	42,300	T.	M. & B.
300	Standard (S.A.)	12 x14	300	9,500	..	M.&B.
300	Standard (D.A.)	10 x10½	300	8,000	..	M.&B.
360	Nlseco Diesel	13 x18	240	55,000	H.	Diesel
500	Standard (D.A.)	12½x13	300	16,000	..	M.&B.
1000	Standard (D.A.)	16 x16	300	25,000	...	M.&B.

EIGHT CYLINDERS

28	Able	2½x 4	1,500	275	T.	J.S.M.
34	Herschell-Spillman	3¼x 5	1,000	600*	L.	J.S.B.
60	Miller	4½x 6	800	1,400	T.	J.S.M.
70	Vulcan	7½x 8½	435	4,500	T.	J.S.
75	Curtiss	4 x 5	1,100	...	H.	J.S.M.
85	Miller	5¼x 7½	600	2,200	..	J.S.M.
90	Curtiss	4 x 5	1,200	...	H.	J.S.M.
100	Curtiss	4¼x 5	1,250	...	H.	J.S.M.
100	Holmes	6 x 9	400	4,500	L.	J.S.M.
100	Mercury	5¼x 5	900	1,050	T.	J.S.M.
115	Van Blerck	5½x 6	1,000	1,800	T.	D.J.S.
120	Maximotor	4½x 5	1,350	600	H.	J.S.M.
120	Mercury	5¼x 6	900	1,120	T.	J.S.M.
125	Missouri	5 x 5	1,000	645	H.	J.S.M.
135	Thomas	4 x 5½	2,500	...	H.	J.S.M
150	Achilles	5¼x 7	1,500	800	H.	J.S.M.
150	Maximotor	5 x 6	1,350	700	H.	J.S.M.
150	Sterling	5½x 6¾	1,000	2,150	T.	D.J.S.
160	Curtiss	5 x 7	1,100	...	H.	J.S.M.
170	Speedway	5¼x 7	1,200	2,300	L.	J.S.M.
170	Van Blerck	5½x 6	1,400	1,640	T.	D.J.S.
200	Hall	8 x12	400	12,000	L.	...
200	Robert's Motor	5¾x 6	1,500	900	H.	J.S.M.
200	Sterling	8¼x10	500	7,000	L.	J.S.B. &M.
200	Winton	6½x 9	900	4,400	L.	J.S.M.
220	Mercury	6½x 7	900	1,700	T.	J.S.M.
220	Van Blerck	5½x 6	1,700	1,640	T.	D.J.S.
225	Sterling	5½x 6¾	1,500	1,400	H.	D.J.S.
240	Nlseco Diesel	9 x12½	350	32,000	H.	Diesel
275	Speedway	8 x 8	950	3,600	L.	J.S.M.
300	Speedway	7½x 8	1,100	3,600	L.	J.S.M.
300	Sterling	6¾x 9	1,000	5,000	T.	D.J.S.
480	Nlseco Diesel	13 x18	240	65,000	H.	Diesel

Two-Cycle

SIX CYLINDERS

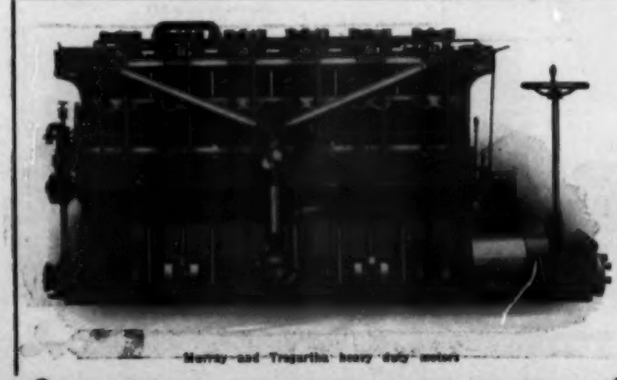
Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
30	Leary	3¾x 3¾	800	660	..	J.S.B.
60	Pierce-Budd	4 x 4	1,600	395*	..	J.S.M.
60	Wisconsin	4½x 4½	1,160	720	..	...
75	Johnson	4 x 5	1,250	350*	Special	J.S.M.
75	Leighton	5 x 4½	1,000	625	..	J.S.B.M.
90	Mercury	5 x 5	900	625	..	J.S.M.
100	Roberts	5 x 5	1,200	600	..	J.S.
300	Pierce-Budd	6½x 7	1,400	1,300*	..	J.S.M.
360	Southwark-Harris	9 x13	300	31,000*	..	Diesel
675	Southwark-Harris	12 x21	200	66,000*	..	Diesel
1,200	Southwark-Harris	16 x28	150	...	..	Diesel

EIGHT CYLINDERS

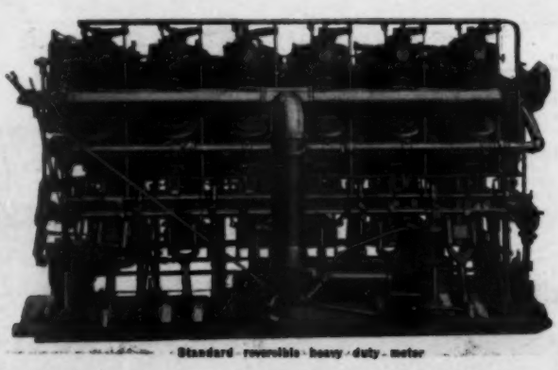
100	Johnson	4 x 5	1,250	325*	Sp'l	J.S.M.
400	Pierce-Budd	6½x 7	1,400	1,750*	..	J.S.M.
450	Southwark-Harris	9 x 13	300	40,000*	..	Diesel
900	Southwark-Harris	12 x 21	200	85,000*	..	Diesel
1,600	Southwark-Harris	16 x 28	150	...	..	Diesel

TWELVE CYLINDERS

150	Johnson	4 x 5	1,250	450*	Sp'l	J.S.M.



Murray-and-Tregurtha heavy-duty motors



Standard reversible heavy-duty motor

AMERICAN MOTOR BOAT PARTS AND ACCESSORIES

REVERSING DEVICES

Baldridge Reverse Gears

These gears are of the balanced planetary type with a single shaft which is supported by the long main bearings at the ends, eliminating the possibility of sagging, binding, heating or grinding. The gears are made as light and compact as it is possible without sacrificing strength, and are entirely enclosed, with no moving parts exposed. The latest models have detachable tubular levers furnished in any desired length which can be bent or shaped for special installations. These gears are manufactured by the **Baldridge Gear Co.**, of 678 West Grand Boulevard, Detroit, Mich.

Syracuse Starter and Reverse

The Syracuse Gear Co., of 105 Grape St., Syracuse, N. Y., is putting out an improved Syracuse reverse gear with which is combined in one unit a rear starter. The rear starter shaft is located sixteen inches above the center of the reverse gear shaft, and has a reduction of two to one. A silent chain and the self-releasing pawls which are used in the construction of this starter combine to render it entirely noiseless, the chain and starting crank being at rest when the engine and gear are running. The forward clutch used in this unit is very powerful, but it is declared that the leverage is so great that very little pressure is required to operate it.

Joe's Reverse Gears

The Snow & Petrelli Mfg. Co., of New Haven, Conn., makes reverse gears adapted to every type of boat, including small, compact, high-powered gears for medium and high-speed motors, special racing gears, and one-way clutches for extreme high-speed displacement boats and hydroplanes, as well as big Duplex Drive gears for heavy-duty motors. Recent improvements in some of these reverse gears include a device for the elimination of backlash in the go-ahead position, an adjustment for neutral as well as the forward and reverse, and the introduction of a straight instead of a step pinion, giving the reverse motion eighty per cent of the forward speed.

Detroit Standard Reverse Gears

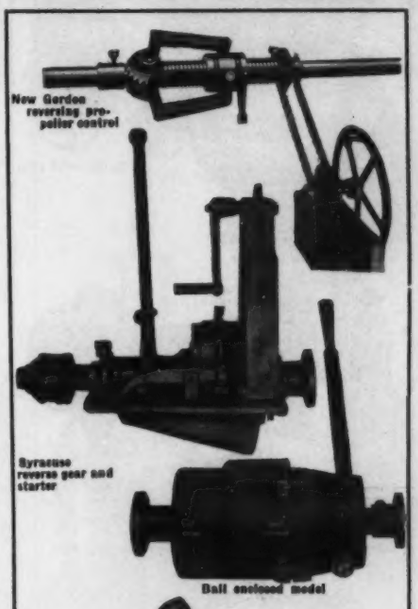
These gears, which are manufactured by the **Detroit Standard Gear Co.**, of Woodbridge & McDougall Aves., Detroit, Mich., are made in five sizes for transmitting power from any engine up to 225 h.p. operating at from 100 to 1,500 r.p.m. They are of the internal expanding double-finger type and the clutch can be engaged gradually or instantly as required. The reverse band is self-centering, adjustments being made on the outside of the case, and the gears are five in number, made of special steel and hardened by a secret process. Of these gears, four are of the same size, having sixteen teeth each, and the fifth has but twelve teeth, causing a reduction on the reverse motion of twenty-five per cent. All gears travel at engine speed or less.

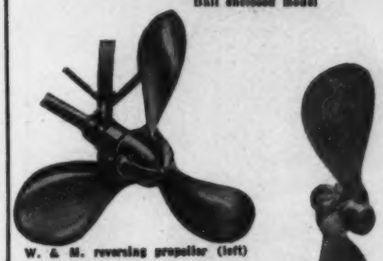
Gies Enclosed Gear

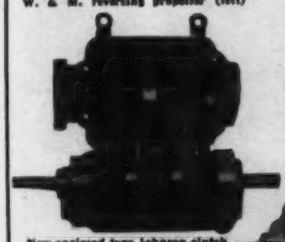
The Gies Gear Co., of 45 East Fort St., Detroit, Mich., is manufacturing a line of medium-priced reverse gears for which great claims to durability and dependability are advanced. The new Gies enclosed gear is made in two sizes—Model E and Model F. Model E transmits 1½ h.p. per 100 r.p.m., and should not be used on any engine larger than a two-cylinder 4½ x 4½-inch. Model F transmits 2½ h.p. per 100 r.p.m. and is suitable for use with any motor up to a 4¼ x 4¼-inch four-cylinder machine. These ratings are based on high speed motors.

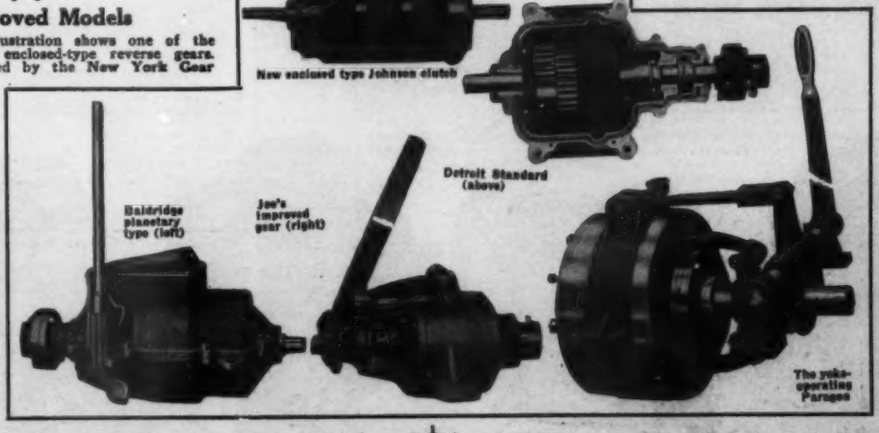
Ball Improved Models

The accompanying illustration shows one of the latest designs of Ball enclosed-type reverse gears. This gear, manufactured by the **New York Gear Works**, of 58 Greenpoint Ave., Brooklyn, N. Y., is designed for all classes of work where cleanliness and maximum efficiency are desirable. Some of the many features are the use of a tapered expanding clutch, which is declared to be positively automatic in its adjustment; the one-piece shaft; an oil-tight and water-proof housing; instantaneous reverse, and provision for auxiliary connection for forward control. This gear is made in two sizes for transmitting anywhere from 5 to 80 h.p.









Gordon Improved Propeller Control

The **Gordon Propeller Co.**, of 2016 Desmond Ave., Cleveland, O., has recently designed an improved control, shown in the accompanying illustration, to take the place of the ordinary reverse lever. This is known as a screw control, and was designed primarily for use on large, heavy boats where the diameter of the propeller is so great that it becomes exceedingly difficult to throw over the lever. The new control is declared to give unlimited power, and the threads are large enough so that by a few turns of the hand-wheel the blades can be quickly shifted from full ahead to full reverse. Another advantage of this device is that it permits the pitch of the blades to be set to the smallest fraction of an inch.

W. & M. Reversing Propellers

The Wilmarth & Morman Co., of Grand Rapids, Mich., specializes in reversing propellers, of which it makes several types. These propellers are made from U. S. composition bronze and the reverse lever and quadrant as furnished on all standard outfits are in steel, black enameled. The latch and dog are of polished bronze. The blades of these propellers are declared to be so perfectly fitted that there is no lost motion or rattle in the wheel, while all other parts are accurately constructed and fitted to eliminate vibration. The design of the hub is such that the blades are sure of revolving in solid water, while the conical cap on the shell eliminates all suction. Points of advantage claimed for these reversing propellers are balanced design, powerful mechanism, adjustable pitch and scientific design.

The Model F Johnson

The Carlyle Johnson Machine Co., of Manchester, Conn., announces that it now has a complete line in the model F enclosed type reverse gear, capable of carrying any horsepower up to 50 or 60. The No. 3 gear shown in the accompanying illustration has been supplied without cases in large numbers during the last season, and the company will have this size encased and ready for the market in the spring. One of the strongest features of these gears is their ball-bearing construction, which, it is pointed out, permits the transmission of more of the actual power of the motor than is possible when plain bearings are used. This gear is easy to lubricate and adjust, and its design is declared to be such that there is no chance of oil or grease being spattered about the boat.

Miller Adjustable Propeller

W. T. Miller & Sons, of 148 Chestnut St., Detroit, Mich., manufactures the Miller adjustable propeller, whose chief feature is that it is adjustable to any pitch from 0 to 40. With this adjustable feature it is pointed out, the purchaser who has made a slight error in the calculation of the proper pitch of his propeller may correct this defect without having to buy a new propeller. By the use of this wheel, it is also declared, the pitch may be so regulated that the motor will run at a speed at which it will develop its rated horsepower, thereby obtaining a better boat speed. Wheels of this type are made in right and left hand, in sizes from 12 to 20 inches in diameter, and at prices ranging from $6 to $10. The material used in their construction is declared to be the best bronze obtainable.

New Paragon Model

The Paragon Gear Works, of Cushman St., Taunton, Mass., has brought out a new Paragon reverse gear in which is incorporated a yoke operating device. As may be seen from the illustration, there is no lower link such as some of the former models had. The omission of this link, it is declared, not only enables an engine manufacturer to save room in the installation, but obviates any possible chance of a part of the gear becoming rusted by being immersed in bilge water. Another advantage claimed for this yoke-operating Paragon model is that the operating lever may be placed on either the port or starboard side. Ingenious stop links form a part of the mechanism, securely holding the lever in the forward position. This model was severely tested before being put on the market and gave excellent satisfaction.

ELECTRICAL APPLIANCES

Henricks Generator for 1916

The Henricks Magneto & Electric Co., of 1235 St. Paul St., Indianapolis, Ind., has effected many improvements in its 1916 Eureka generator, which is known as the BC-4. The most important of these is a unique mechanical cut-out upon which many patent claims have been allowed. This cut-out does away entirely with any pitting of contact points, for the reason that none are used to break the circuit between the generator and the battery. When the engine stops or when the speed drops below a certain minimum where there would be danger of backflow, in this system the brush is simply lifted from the commutator, breaking the circuit, of course. The contrivance is very simple, and is declared to be absolutely fool-proof. This generator is equipped with Norma ball-bearings. The governor is of the fly-ball type and keeps the generator down to a constant r. p. m. of 2200, at which speed it is designed to deliver 6 to 7 amperes at 6 volts. This generator can be bought separately for $30 or as part of a five-light outfit, including the new Henricks No. 20 switchboard and a Willard 6-60 storage battery, this outfit listing at $90.

* * *

Elite Generating System

E. A. Gardner, of P. O. Box 547, Rochester, N. Y., is prepared to quote prices on a complete lighting outfit including wires, staples, switches, lights, sockets, insulting tapes, storage battery, dynamo, running lights and searchlights. The generator used in this system is shunt wound with laminated field and armature, and is carefully fitted with a twelve-section commutator insulated with mica. The storage battery used is the Jewel open window battery which has extra large plates having very low internal resistance.

* * *

Comet and Sootless Spark Plugs

The Oakes & Dow Co., of 15 Chardon St., Boston, Mass., manufactures Comet and Sootless spark plugs, for which strong claims to perfection are made. The Comet is a mica plug furnished with either open or closed end and sold for $1.25. In the construction of the Sootless plug the company has combined the good features of both types of Comet plugs and has added several improvements. A porcelain cap has been added to the engine end of the plug and asbestos packing has been eliminated. The plug is so constructed that high cylinder pressures tend to tighten rather than loosen it, and it is declared to be practically oil and soot-proof. This plug is sold for $1.50.

* * *

Schug Electrical Specialties

The Schug Electric Co., of Detroit, Mich., manufactures an extensive line of storage batteries, spark coils, switchboard, dynamos, and other electrical specialties. One of their small generators is shown in the accompanying illustration. This dynamo has a capacity of 5 amperes, and is used for charging a 6-volt battery. It is shunt wound and is of the enclosed type with connections on top. It is described as a neat and reliable machine well adapted for motor boat use.

* * *

The Type ZR Bosch Magneto

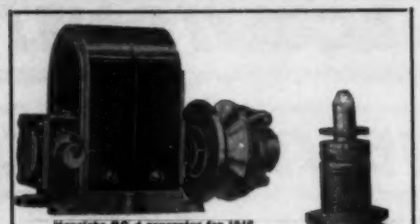
One of the most famous of the many magnetos made by the **Bosch Magneto Co.**, of New York City, is the Type ZR., which is furnished for four and six cylinders. Although this instrument is of enclosed construction, the parts which are subject to wear in the normal course of operation are easily accessible without the use of tools for the purpose of inspection and adjustment. The efficiency of this apparatus is declared to be such that a highly satisfactory ignition spark is produced at a low rotative speed, and at any position of the timing control arm, thus assuring easy starting and successful operation under close throttle conditions.

* * *

C. O. D. Indicators

The Roller-Smith Co., of 203 Broadway, New York City, is the manufacturer of C. O. D. indicators for use in connection with electric light and starting systems on motor boats. These indicators are so called because of the three indications which they give—namely, battery charging, off and discharging. They are designed when properly connected in circuit to show the operator at a glance how his electric system is performing. If Off is shown with the engine running, it is an indication that some part of the system is out of order, while if Discharge appears when the lights are thought to be turned off, warning is similarly given of abnormalities which require correction; and if Charge shows when the engine is running, the operator may know that his electric equipment is in working order.

* * *



Henricks BC-4 generator for 1916

Elite generator

V-Ray Mika plug

Sootless plug

The Olympic motor-driven horn

Schug 6-volt generator

Champion Heavy Duty

Ross Neverout searchlight

The Olympic Motor-Driven Horn

The Electric Spark Appliance Co., of 140-162 Imlay St., Brooklyn, N. Y., is manufacturing the Olympic motor-driven horn, which is stated to be both fool and trouble proof. It is declared that the sound given forth by this horn is loud and smooth and compels instant attention. Accessibility is one of the features of this horn, and adjustments, if necessary, can be accomplished without taking it apart.

* * *

The V-Ray Mika Plug

The V-Ray Co., of Marshalltown, Ia., manufactures a line of V-Ray four-point plugs of which the Mika type is especially recommended for motor boat use. Features claimed for this plug are its simplicity, its reinforced center stem which prevents all danger of warping, and the large area between the center stem and the surrounding shell walls. The material used in its construction is the highest grade mica—whence its name. This plug, which is declared to be especially useful where an engine is exposed to flying spray, is made in all threads, and is sold for $1.25.

* * *

Apex Marine Lamps

One of the many marine specialties put out by the **Sutliffe-Madsen Co.**, of 136 Liberty St., New York City, is the Apex marine lamp which is used the same as an oil lamp, but without the dirt and danger. As made for use on Class 1 boats, this lamp is provided with red and green bull's-eyes to conform with the requirements of the law, and one bulb is furnished to supply light for both lenses. The current supply is obtained from one of a brace of dry cells and provision is made for quickly changing from one cell to the other.

* * *

Neverout Electric Searchlight

The Ross Mfg. Co., of 910 Arch St., Philadelphia, Pa., is manufacturing an electric searchlight which is made especially for motor boats on which a powerful light is required. This searchlight is scientifically focused so as to bring into play every portion of the reflector, which reflector is of the parabolic type, highly polished. The searchlight is wired in a special way to make it absolutely proof against the most inclement weather conditions, and it is declared that a short circuit cannot possibly occur.

* * *

Champion Spark Plugs

One of the leading plugs manufactured by the **Champion Spark Plug Co.**, of Toledo, O., for the marine trade is the Champion Heavy Duty. This plug is so constructed that the porcelain is securely sealed into the shell, preventing compression leakage even under the most severe conditions. The porcelain is guaranteed not to crack or break on account of excessive heat in the motor. A unique feature of this plug is that it has no bushing. It is made in the usual sizes and is sold for $1.

* * *

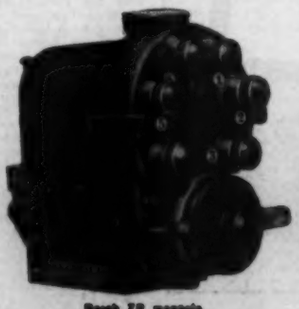
Simms Magnetos

One of the principal features of the American Simms magneto is the new form of pole shoe, which is designed to enable the machine to produce a spark of equal intensity from the full advance to the full retard position. This improvement is declared to remove the danger of receiving a back-kick by advancing the spark too far when cranking, as the spark should be fully retarded for starting purposes. These pole shoes are fitted to both the independent and dual models, rendering starting on the magneto very easy with both. Simms magnetos are at present supplied in various models for two, four and six cylinders. These instruments are made by the **Simms Magneto Co.**, of East Orange, N. J.

* * *

Universal Lighting Plants

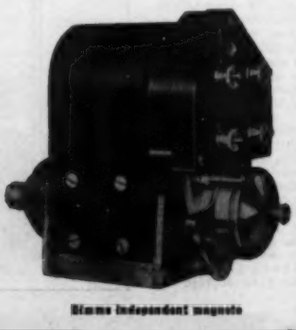
The Universal Motor Co., of Oshkosk, Wis., has been manufacturing a direct connected lighting plant for launches for the last two years and has supplied a large number for this purpose. The plant consists of a four-cylinder four-cycle engine direct-connected to a 3 k. w. ten-pole generator. The engine has magneto ignition and a sensitive throttling governor running in oil which maintains the speed regardless of load, so that there shall be no flicker whatever on the lamps whether one lamp is used or the full capacity.



Bosch ZR magneto

Apex bow lamp

C. O. D. indicator for starting systems



Simms independent magneto

Mosler Spark Plugs

Of the many spark plugs manufactured by **A. R. Mosler Co.**, of Mount Vernon, N. Y., perhaps the most famous is the Red Tag Spitfire with platinum point. This plug is stated to literally spit fire instead of merely sparking, its patented base construction making it shoot flame throughout the mixture. Another Mosler plug which is especially recommended for marine use is the Junior, which is designed to combine good service with very reasonable price. This plug is made in all sizes and is sold for fifty cents.

* * *

North East Generating Systems

The North East Electric Co., of Rochester, N. Y., announces that during the past year its generating system has proven so satisfactory that no decided alteration or change has been found necessary in its design. Several minor improvements have been made, but these are mostly in detail, and do not change the appearance or operation of this direct-drive system. The North East motor generator has been in use for starting and lighting duty on marine engines for several years. It is a single-unit system in which the starting motor acts as a generator. After the motor has picked up sufficient speed, it recharges the storage battery, replacing the energy used in starting, and furnishing additional current for marine motor lighting requirements.

* * *

Sumter Dixie Magnetos

The Sumter Electric Co., of 1413 Michigan Ave., Chicago, Ill., is now putting out a line of Dixie magnetos for marine motors. These are made in several sizes and the smallest of them is shown in the accompanying illustration as being of interest to the owners of small make-and-break motors. This magneto is known as the Imp and is declared to be the smallest magneto of its type manufactured. It has genuine tungsten steel magnets, brass end plates, and covered oilholes. This type, it is declared, has every essential feature necessary for long life and successful service, and the price is only $7.50.

* * *

Carleton Generators

The Carleton Co., of 313 Wentworth Building, Boston, Mass., manufactures the Carleton generator, which is stated to give excellent lighting service in marine use. The generator operates at a normal speed of 1,800 r. p. m., its output at this speed being seven volts and seven amperes, and for motor boat use it is declared that no mechanical governor is necessary because of the practically constant speed of marine engines.

* * *

Viking Spark Plugs

These plugs are designed for lasting service under all conditions and are stated to fire with unfailing regularity in the most copiously lubricated heavy-duty motors. The insulator and the center electrode are hermetically fused together, making them one solid unit, and, it is said, thus overcoming loss of compression. Special attention in manufacturing this plug is given to the exterior design and its general finish. Viking plugs, which are made by the **John McGregor Co., Inc.**, of Roslindale, Boston, Mass., are sold under a guarantee for $1 each.

* * *

Edison Primary Batteries

Thomas A. Edison, Inc., of Orange, N. J., has been manufacturing Edison primary cells for ignition purposes ever since the introduction of the internal combustion engine. The materials used in the manufacture of the cells remain the same, but the voltage capacity and efficiency have been increased and other improvements have been effected. It is claimed for the Edison primary battery that it is capable of carrying the average ignition load for at least one season without renewal, and that the ignition battery may also be used for lighting two or three low voltage 2 c.p. Mazda lamps without serious drain on the current supply.

* * *

Presto Trouble Lamps

The Metal Specialties Mfg. Co., of 730 West Monroe St., Chicago, Ill., is manufacturing a line of Presto inspection lamps, trouble lamps, as well as these in various combinations. One of the handy trouble lamps, shown in the accompanying illustration, is fitted with a three-inch bull's-eye, which throws an exceptionally strong light with sufficient spread for all purposes. It is designed for general use about a motor boat and is provided with a hook attached to the cord, so that it may be hung where needed.

* * *

Esterline Lighting Systems

The Esterline Co., of Indianapolis, Ind., is manufacturing dynamo systems for motor boat lighting in three sizes, differing mainly in the number of lights the dynamo will supply. Each dynamo is mounted upon a base providing means of adjusting the drive which may be either flat faced belt or a bevel friction pulley. All three equipments operate on the principle of floating the battery on the line, so that when the dynamo is at rest the current is supplied from the battery, but when the dynamo comes up to speed, an automatic cut-out closes and the current from the dynamo supplies the lights and recharges the battery. The automatic cut-out used is of special design in which there is no half-way position—either it is fully open or positively closed.

* * *

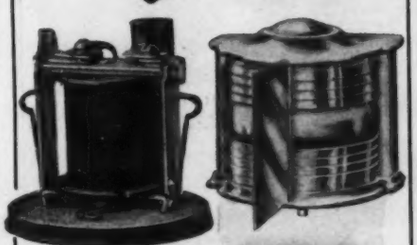
Presto handy trouble lamp

Mosler Vesuvius plug

North East motor-generator

Carlisle-Finch nine-inch projector

Jaeger gas-filled bulb


Cut-out used with Carleton generator

Cello Wire-Less bow light

Viking spark plug for heavy-duty motors

A complete Apelco lighting system

The Jaeger Nitrogen Lamp

This is a high efficiency bulb in which the filament is made of drawn tungsten wire coiled into a helix and mounted within a very small space, thus concentrating the light and permitting close focal adjustment. Instead of operating in a vacuum, as is the case with the ordinary type of tungsten bulb, this filament is surrounded by nitrogen and other gases under pressure. The presence of this gas is declared to permit of a higher incandescence of the filament without disintegrating, thus producing higher candlepower and superior efficiency. **The H. G. Jaeger Co.**, of Hoboken, N. J., is the manufacturer.

* * *

Carlisle & Finch Searchlights

The Carlisle & Finch Co., of Cincinnati, O., manufacture a very complete line of searchlight projectors from mammoth instruments for use on ocean liners to small affairs for motor boats. A powerful projector for boats from 40 to 60 feet in length is the Form I-M, fitted with a nine-inch Mangin mirror and capable of picking up objects three-quarters of a mile distant. This searchlight has the Carlisle & Finch standard type of carbon-feeding mechanism, with both hand and automatic feed. The amount of current can be from 5 to 10 amperes, and the candlepower 1,500 to 2,000.

* * *

Cello Electrical Goods

The A. S. Campbell Co., of 286 Commercial St., Boston, Mass., has been adding to its line of motor boat specialties from time to time until now it has practically every article of electrical equipment which might be desired by the boat owner. Among these are Cello switchboards, Cello lighting systems, binnacle lights, various types of running light equipment, etc. One of the newest items in this line is the Cello Wire-Less combination light for use in Class 1 boats. This light is built very strongly and is so designed that no wires run along the deck. It is made in polished brass, bright nickel or black nickel, and is sold for $7.50.

* * *

Mea Magnetos

These magnetos, which are manufactured by **Marburg Bros., Inc.**, of New York City, all are of the well-known Mea cradle type, in which the bell-shaped magnets are placed horizontally in the same axis with the armature, making possible and practicable the simultaneous advance and retard of the magnets and breaker, instead of the advance and retard of the breaker or timer alone. In this construction it is pointed out that the relative position of armature and field at the moment of sparking is absolutely maintained, producing the same quality of spark no matter what the timing may be.

* * *

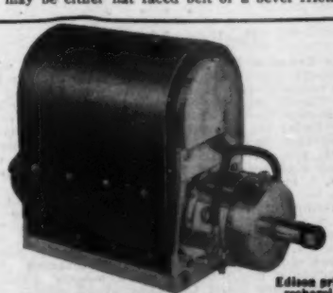
Apelco Lighting Systems

The Apple Electric Co., of North Canal St., Dayton, O., is manufacturing three complete electric lighting systems for motor boats, these systems being designed to handle the needs respectively of boats less than 25 feet in length, those between this length and 40 feet, and motor yachts of 40 to 65 feet in length. Model B-1, the smallest size, consists of a 5-ampere dynamo, indicating automatic switch and 6-volt, 60-ampere hour storage battery. The dynamo delivers its rated output at a speed of 1,500 r.p.m., and may be driven by friction or belt, as desired. The Model B-2 system consists of a 10-ampere dynamo, No. 2 Apelco switchboard and 6-volt 100-ampere hour storage battery. The largest system, Model B-3, is composed of a 25-ampere dynamo, a No. 3 switchboard and two 6-volt 100-ampere hour storage batteries.

* * *

Dixie Magnetos

The Splitdorf Electrical Co., of Newark, N. J., manufactures Dixie magnetos in several sizes for marine use. To this service they are especially adapted, owing to their water-proof construction, with the coil high up in the arch of the magnets where it is removed from oil and moisture. Other points made for these magnetos include their extreme simplicity, the high quality of the spark delivered even at the lowest speeds, and their general freedom from trouble. As the breaker mechanism is stationary there is no likelihood of oil being thrown on the points by centrifugal action, while there are no brushes to gum in the primary circuit, or, in fact, in any circuits.


Esterline Model E dynamo

Edison primary coil with recharging equipment

The Sumter Imp for make-and-break motors

Mea cradle type magneto

Champion Lighting Equipments

Hector MacRae, of 316 St. Paul St., Baltimore, Md., is manufacturing a number of lighting equipments for motor boats and yachts, of which the 6-150 model is declared to be the most popular type. This outfit furnishes ample light and ignition for the average cruiser of 50 feet or less and burns ten 8 c.p. lamps for eight hours, while a 40 c.p. searchlight can be used. The three principal parts of this equipment are the 6-volt 150-ampere hour storage battery, a belt-driven dynamo, which operates at a speed of 1,800 r.p.m. and consumes ¾ h.p., and the switchboard. This switchboard is constructed of Venetian slate and measures 14 x 11 inches.

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X-Ray Spark Plug Detector

The Beard Auto Lift Co., of Pleasant Lake, Ind., is putting out the X-Ray spark plug detector which is stated to have several advantages besides effecting great economy in the operation of any gasoline motor. The X-Ray is constructed of black rubber, and, as may be seen from the accompanying illustration, is fitted with an auxiliary spark gap by which the condition of the spark in the various cylinders of the motor may be ascertained. The instrument is mounted in view of the operator, and when it is desired to test the engine the star-shaped object in the center of the device is turned to bring the various projections in line with the numbered wire terminals. Should there be a dead plug or if any of the cylinders are working improperly, it is stated that the defect will at once be made apparent by the detector.

• • •

Rajah Plugs

These plugs are manufactured by the **Rajah Auto Supply Co.**, of Bloomfield, N. J., and are claimed to be equally well adapted for battery and magneto. Only the highest grades of imported porcelains and electrodes are used in their construction, and the form of the porcelain is such that the plugs are practically soot-proof. The new water-proof Rajah plug is the same as the regular type with the addition of a heat-resisting Condensite protecting part screwed to the plug bushing, and a special nipple covering the clip terminal on the cable. This device, which is guaranteed to be absolutely water-proof, is supplied in all standard sizes with a Rajah regular terminal to fit the cable. The price is $1.50 postpaid.

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Cuno Electric Specialties

The Cuno Electric Corp., of Meriden, Conn., is offering several lighting and ignition specialties which should be of interest to motor boatmen. One of the former is a self-winding trouble lamp, which is so arranged that the housing containing the reel and spring is mounted behind the bulkhead, and is invisible. Another lamp of similar design is the type K for illuminating instrument boards or switchboards. The opening in the shade cap in this lamp is placed to light the entire board to an angle of 150 degrees. All visible parts are of polished brass, nickel-plated. The Cuno type BM timer needs no introduction to motor boat owners as it has been on the market for several years.

• • •

New Benton Spark Plug

The L. F. Benton Co., of Vergennes, Vt., has recently announced a new type of Benton spark plug in which the insulator is of very thin sheet mica spirally wound upon a central electrode and forced to a gas and oil-tight joint within a steel bushing. The mica upon the bushing is enclosed in a porcelain spacer which it is said can be cracked or entirely removed without short-circuiting the plug. The insulator as a whole is easily removed for cleaning, and this feature, together with freedom from fouling, is announced as one of the strong attributes of this plug.

• • •

New Breaznell Clip

J. H. Breaznell, of 26 Court St., Brooklyn, N. Y., is just bringing out a new Breaznell clip and terminal connector which is declared to have several advantages. This clip is intended for spark plugs, jump-spark coils, and other terminals, and is designed to lock without solder and yet be proof against vibration. As shown in the accompanying illustration, the principal improvement which has been effected with this clip is a brass ferrule which clamps down over the insulation around the wire, and in connection with the other locking devices makes it impossible, it is said, for the connection to break loose. This ferule is made of soft brass, and will hold wire from one-quarter to three-eighths inch in diameter.

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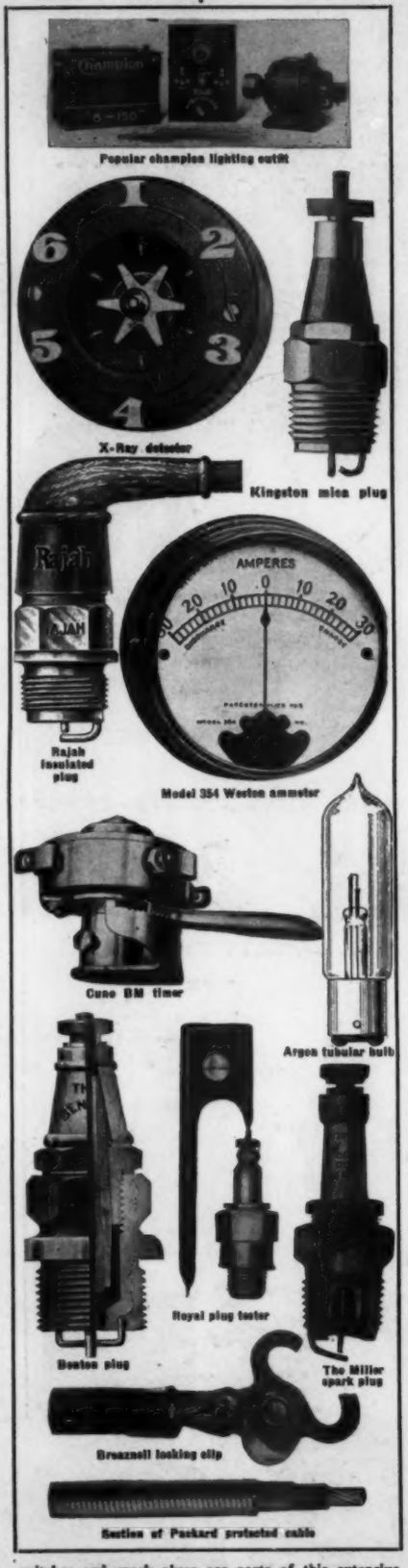
Hi-Po Waterproof Cells

The Hi-Po Waterproof Battery Co., of 1097 Atlantic Ave., Brooklyn, N. Y., calls attention to the fact that its Hi-Po dry cells have actually been submerged in water for a period extending over a year and have tested up to an average of 17.8 amperes and 1.5 volts per cell at the expiration of that time. These cells in addition to being waterproof and insulated are declared to have more voltage and to last longer than ordinary dry cells. They are sold in lots of less than twelve at thirty-five cents apiece, and in barrel lots at twenty-four cents each.

• • •

Kingston Ignition Specialties

The Kokomo Electric Co., of Kokomo, Ind., puts out a line of accessories which is stated to cover every ignition requirement. Kingston magnetos are made in several sizes for both jump-spark and make-and-break, and are constructed of the best materials obtainable. The armatures are of the H type with laminated centers, and the magnets are of the best quality imported tungsten steel. Accessibility of all working parts is a special feature of these magnetos, and neither wrench nor screw driver is required in reaching parts that may require attention. All wires are connected by spring fasteners, thus insuring positive contact at all times. Kingston coils are also put out in a variety of styles, and switches and spark plugs are parts of this extensive line. The mica spark plug, shown in the accompanying illustration, is sold for seventy-five cents.



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Sprung Spark Plug

A. Sprung, of 126 West 118th St., New York City, has designed a spark plug in which a bushing or adapter containing an insulated terminal electrode is secured into a small recess at the bottom of the plug so as to make positive contact with the main portion of the electrode and porcelain when in its proper position. This adapter also carries another electrode, which is grounded to the casing. It will thus be seen that the sparking points can be readily removed for cleaning, and also for replacement in case of breakage, without disturbing the main body of the plug. It is also claimed that by this construction breakage of the porcelain or any other installation through expansion is prevented.

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Weston Ammeters and Voltmeters

The Weston Electrical Instrument Co., of Newark, N. J., recommends its Model 301 ammeters and voltmeters, and its Model 354 ammeter for use with electric lighting and starting systems on motor boats. The Model 354 is always furnished with zero in the center of the scale only, and in various ranges for special purposes. The standard ranges for motor boat use, however, are 15-0-15 amperes and 30-0-30 amperes. If the exact range required for any particular equipment is not known the higher one is recommended, as it is declared to be sufficient to care for the largest generating set on the market, and to give a satisfactory indication in sets having comparatively low charging rates. The action of the pointer of these instruments is declared to be extremely quick and responsive and at the same time properly dead-beat.

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Argon Lamps

In addition to several searchlights and spotlights the **Wood Mfg. Co.**, of Fairfield, Conn., manufactures a tubular bulb for searchlight purposes which is declared to have several distinctive advantages. This bulb is filled with what is described as Argon gas, a concentrated form of nitrogen gas. By its use, it is declared, the filament can stand more excess voltage and burns with a much brighter light. Instead of burning in a vacuum, as is the case with most tungsten bulbs, the filament is surrounded by Argon gas under pressure, and gives off an extremely white, intense light. The tubular form of bulb is declared to give twenty per cent. more light than the conventional round bulb.

• • •

The Royal Tester

This is a device which is manufactured by the **Royal Tester Co.**, of 122 Anderson St., Pittsburgh, Pa., and is intended to solve engine troubles without the necessity of taking the engine apart. The Royal tester is constructed of black rubber and consists of an arrangement whereby an extra spark gap may be inserted in the ignition circuit. It is declared that this device will show a regular spark when the plug is in good condition, an irregular one when the porcelain is defective and no spark at all when the plug is short circuited. The Royal tester is sold for $1.

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Miller's Motor Boat Specialties

Chas. E. Miller, of 97 Reade St., New York City, lists in his catalogue quite an extensive line of specialties for motor boats and marine engines. Among these might be mentioned running lights of all types, compasses, magnetos, auto boat tops, propellers, reverse gears, etc., as well as such smaller articles as cleats, deck plates, stanchion posts, ventilators, etc. The Miller spark plug, which is regularly sold for thirty-five cents, is declared to have met with considerable success in the marine field during the past year, and this concern has sold its Pan American oils and greases in large quantities to boat builders and owners, we are informed.

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Packard Armored Cable

The Packard Electric Co., Department O, of Warren, Ohio, manufactures Packard armored cable, which is specifically intended for the hardest kind of service. The core of this cable is composed of strands of soft-drawn tinned copper wire laid in reverse layers, making it flexible and round in cross-section. The insulating covers are made in three combinations, determined by limitations of diameter and the service required of the cable. Over the insulating material there is placed a layer of braid which is tough and very strong, and the cable is then given a special treatment to protect the insulating materials against the rotting action of oil. An oil-proof elastic enamel is then applied, filling and closing every pore of the braid. The armor, which is applied last, is an all-metal ribbon wound on in a very close fitting coil which protects the cable and leaves it flexible. This armor cable affords protection against mechanical injury, abrasion and vibration.

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Bruns, Kimball Spark Coil

Bruns, Kimball & Co., of New York City and Philadelphia, who act as agents for several representative marine motors of both two and four-cycle design, get out a high-grade coil of the jump-spark type which sells for $3.50 or $4, according to whether it is open or covered. They also have a high-grade make-and-break spark coil which is enclosed in a brass case, and is offered for $2, or with switch attached for $2.25. This coil is stated to be practically indestructible and to give a very hot spark.

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Berling Magnetos

The Ericsson Mfg. Co., of Buffalo, N. Y., whose two-spark eight-cylinder Berling magneto has been used recently with marked success on Sterling and Van Blerck motors, is entering still further into the marine field with the production of four and six-cylinder magnetos of the same type. It is declared that owing to the design of these instruments, the careful selection of the materials used in their construction, and the balancing of the various parts, a high degree of efficiency is obtained. All parts of these magnetos are enclosed in a frame consisting of one solid casting, embodying the base, top, sides and driving end bearing, protecting the working parts of the magneto from oil, dust and water. Berling magnetos are declared to develop a spark equally as strong in the retarded as in the advance position, the quick snappy action of the interrupter being the same at all speeds.

G. E. Generating Sets

The General Electric Co., of Schenectady, N. Y., manufactures gasoline-electric generating sets in one-cylinder and four-cylinder types. The single-cylinder set is designed to meet the demand for a substantial light outfit and the generator is wound for 35 volts. The engine is of the three-port two-cycle type, fitted with magneto ignition and with a float-feed carbureter. This set is provided with an efficient centrifugal governor located within the flywheel, which is very sensitive and which is declared to respond instantly to changes in load.

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Dayton Lighting Outfits

Three separate lighting outfits for motor boats are offered by the **Dayton Electrical Manufacturing Co.**, of Dayton, O., in addition to a line of dynamos, searchlights, electric horns, whistles, etc. The smallest outfit, shown in the accompanying illustration, consists of an Apelco generator with bevel friction governor drive, the Dayton 12-S switchboard, provided with automatic cut-out and combined volt-ammeter, and a 6-volt 60-ampere hour Hubler-Dayton storage battery. This outfit is capable of lighting three 6 c.p. 6-volt lamps in addition to supplying ignition current, and it is sold with lamps, wire and fixtures for $81.

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The Connecticut Igniter

This igniter, which is made by the **Connecticut Tel. and Electric Co.**, of Meriden, Conn., is designed to be operated from the camshaft as a high tension distributor, and is used in connection with a transformer coil and switch. The cams which actuate the circuit breaker strike the roller of the breaker arm in synchronous succession, thus making and breaking the circuit successively. The breaker mechanism consists of a light steel lever pivoted on a steel stud, a bone fiber roller, bearing against the cams, and a large platinum iridium contact held against the contact screw by a steel spring. The distributor arm is fastened to the shaft by a sliding key. Carbon brushes form reliable contacts with distributor blocks and secondary coil terminal.

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Sprague-Brace Searchlights

The Sprague-Brace Mfg. Co., of 60 Jefferson Ave. E., Detroit, Mich., manufactures an attractive and efficient little searchlight, which is declared to project a clear beam a distance of 200 feet. The lamp is made with full swivel movement, so that the light can be thrown up or down or sideways, and provision is made to lock it in any position. A switch is part of the equipment of this searchlight, which also includes a 4 c.p. 6-volt bulb, which may be operated from dry cells or from the storage battery.

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Leece-Neville Starting Systems

The Leece-Neville Co., of Cleveland, O., manufactures marine electric starting-lighting systems which are the product of five years' work in the motor boat field. These are made in various types and in single and separate units. The two-unit types in which the electric motor and electric generator are separate, are for use on all engines, while the single-unit types are intended only for small engines. In the latter type the machine acts as an electric motor, cranking the engine, and when the engine is running it becomes a generator and furnishes current to charge the storage battery. All these systems are wound for 24 volts, for the reason that with this voltage any drop in the lines to the various lamps does not noticeably affect the illumination.

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Willard Storage Batteries

The Willard Storage Battery Co., of Cleveland, O., manufactures a line of lead type storage batteries which needs no introduction to the motor boat trade. The Willard batteries are now put out with a tapered bolt connector, which makes the battery self-contained, and also renders it possible to connect the wiring direct to the battery. This connector is lead-covered and fits into a tapered socket, lead-welded to the terminal posts of the battery. It is declared that the tapered joint insures a connection which will never loosen up through any cause, and that the lead covering of the complete connector makes certain a non-corrosive job.

• • •

Dyneto Electric Starters

The Dyneto Electric Co., of Syracuse, N. Y., is continuing the manufacture of its single-unit electric starters which are suitable for marine motors having a bore of 4½ inches or less, and has also added a line of two-unit outfits made in two sizes. The smallest, or size A, which is shown in the accompanying illustration, is adapted to motors having up to 3½-inch bore, and the larger size is for heavier work. The generator is usually driven at one or one and a half times the crankshaft speed and the drive may be by belt, silent chain or gear. An automatic switch and regulator is used and the starter is usually operated by a Bendix drive, meshing with teeth cut in flywheel. The gear ratio is generally 10 to 1. Every detail of construction has been carefully worked out and the machines are declared to be very rigid, simple of installation, and in no way liable to give trouble.

GENERAL ACCESSORIES

Durkee Capstan and the Crescent Yacht Range

Prominent among the specialties handled by **Charles D. Durkee & Co.**, of 2-3 South St., New York City are Durkee's yacht capstan and the Crescent alcohol yacht range. This capstan, which is illustrated in the accompanying cut, is intended for boats between 50 and 85 feet in length, and is made for ⅜-inch B. B. B. chain only. It has handles on each side and is declared to be very powerful. It runs either right or left, controlled by a ring on the forward part of the head, and the friction brake in the head is controlled by a wheel at the after end. The essential features of this capstan are that it may be used for either rope or chain or both at the same time, and that the wildcat may be used independently of the rope drum and *vice versa*, the drum being worked with the wildcat fixed by simply removing the pin which binds the two together. The yacht range is fitted with a plate warmer and with an auxiliary burner with copper tank for boiling water. The body of the range is made of the best sheet steel with sides, top and back galvanized, and is lined with asbestos millboard and sheet steel, making a double facing. This range, which is also illustrated herewith, is just over four feet in height, by two by approximately three feet, and is sold complete for $135.

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The Go Motor Speeder

This device, which is manufactured by the **Go Motor Speeder Co.**, of Three Rivers, Mich., is designed to effect an economy in the consumption of gasoline in any marine motor. It is composed of a valve which is easily adjusted for the correct volume of air, and is fastened with a bracket to the most convenient place on the motor. It is throttled by a connecting rod which is clamped to the carbureter throttle rod, which makes it mechanically automatic. The air is drawn from this valve through a copper tube leading around the hot exhaust pipe, then into the intake pipe, where it flushes the gasoline through a spray nozzle as it is being drawn from the carbureter to the cylinders. This is declared to break up the mixture into a warm vaper or mist which is just what is required for clean and powerful explosions.

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Essex Lubricating Devices

In addition to a very complete line of automatic and gravity oilers for all purposes, the **G. B. Essex Co.**, of 480 Franklin St., Detroit, Mich., is manufacturing a number of different types of grease cups. One of these, known as the Positive, and shown in the accompanying illustration, is designed expressly for marine purposes, being strong and well made. It is intended for feeding heavy grease to bearings, and is preferred by many to the spring compression type cup in cases where the temperature is continually changing. This cup is made with capacities varying from one-third of an ounce up to ten ounces, the cost ranging from $1 to $4.

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Marblehead Anti-Fouling Paint

The Stearns & McKay Mfg. Co., of Marblehead, Mass., has produced for many years Marblehead anti-fouling green bottom paint, which is a powerful preventive of barnacles and marine growth of all kinds, and is declared to be of great service in tropical waters as a protection against the teredo. In addition to its value as an anti-fouler, it contains a powerful preservative which is calculated to prevent rot. When applied to bare wood no priming coat is used. A thin coating of Marblehead green paint is put on to act as a filler, and the second thicker coat is applied over this. This composition has a very brilliant color and its hard permanent finish is stated to last a long time, making it particularly serviceable for cruising yachts. Another advantage claimed for this paint is that it takes a very slippery polish.

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Albany Lubricating Products

Adam Cook's Sons, of 708 Washington St., New York, are the manufacturers of Albany lubricating products. Albany grease has been on the market for forty-seven years, and is well known wherever marine engines are used. It is for use in grease cups and bearings about the boat, giving good lubrication and economy. Albany grease is stated to be especially good for lubricating bearings on vertical shafts, as it has a low melting point, and will only flow just enough to lubricate and cool the bearing. Every particle of Albany Grease, it is declared, can be consumed in actual useful work, leaving no non-lubricant residue. Cook's Lubricant is an oil for use in reverse gears in which service it is stated to give excellent satisfaction and to be very enduring.

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Kroh Tailor-Made Tops

These tops are made to order according to specifications by the **C. Z. Kroh Manufacturing Co.**, of 1213 Jackson Ave., Toledo, O. They are constructed in a variety of designs and can be covered with khaki duck, mohair or imitation leather. The illustration shows a five-bow top folded down on the after deck. This style of top is recommended for runabouts having cockpits of considerable length. The bows are made of white ash, handsomely finished, and the closed sockets are of double reinforced steel, black enameled. Spray hoods, fenders and life preserver cushions and pillows are also manufactured by this concern.

Kyanize Waterproof Spar Varnish

This is an exterior varnish for motor boat use, which is manufactured by the **Boston Varnish Co.**, of Everett Sta., Boston, Mass. This varnish is pale in color; is absolutely water and weather-proof, it is declared, and will not turn white or blue, or soften, either in or out of salt or fresh water. It should always be applied in light coats, allowing each one to dry before the next is applied, as thick coats do not dry properly. It is put up in distinctive three-cornered cans, very convenient in actual use, in the usual variations of size. Then there is Kyanize White Enamel, a durable high gloss enamel paint that will not crack or peel under the most adverse conditions of climate and weather. Kyanize White Enamel imparts a brilliant lily white luster to all wood and metal work. It is considered excellent for hulls, not only because of its fine looks and long wear, but because it has been found actually to increase a boat's speed.

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W. C. Skene Chock

The W. C. Skene chock, a well-known, popular article of marine hardware, is now included in the line handled by **Wilcox, Crittenden & Co.**, of Middletown, Conn. It is similar to the ordinary bow and stern chocks, but is designed to prevent the cable from jumping out of the chock while in use. The cable, however, may be readily removed from the chock when desired. This article is made in brass or galvanized iron, and is cast in one piece, with no hinge or pins to break at a critical moment. Another popular item handled by this concern is the Navy anchor, in which several improvements have recently been effected.

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Universal Starter

This rear starter is made by the **Universal Safety Starter Co.**, of 311 Atlantic Ave., Boston, Mass. It is claimed for this starter that with it in use the motor may be cranked from any desirable place, while noiseless running, simplicity, reliability and absolute freedom from back-kick are other advantages cited for it. The starting crank is so designed that when it is turned three rollers at right angles to the shaft move up an incline, causing an expansion between the crank handle and camring. This camring as auxiliary, engages the shaft and lever by means of a friction cone which transmits the movement of the crank to the motor. In case of a back-kick the three rollers above referred to release the lever and camring, which latter is kept in place by three rollers parallel with the shaft. The pressure between the lever and the cone is annulled, this releasing the indirect connection between the handle and the shaft, permitting the motor to work backwards without injury to the operator.

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Schebler Carbureters

The Wheeler & Schebler Co., of Indianapolis, Ind., manufacturer of the Schebler carbureter, recommends its D, L and R types especially for marine use. The Model D is the original Schebler, simple in adjustment, and suitable for motors where extreme low throttling conditions are not required. The Model L is designed for the exacting needs of high speed motors where low throttling, rapid acceleration and maximum power and speed are desiderata. The Model R is intended for use on both four and six-cylinder motors, and is a single-jet raised-needle type of carbureter, automatic in action. The air valve controls the lift of the needle and automatically proportions the amount of gasoline and air at all speeds.

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"Perfect Handle" Tools

H. D. Smith & Co., of Plantaville, Conn., manufacture a very complete line of tools under the name of "Perfect Handle," the handles of the screw-drivers, wrenches, hammers, etc., being shaped to fit the hand of the operator. One of these tools is a rubber covered screw-driver in which the rubber extends continuously over the handle and shank and meets the blade flush so that there is no obstruction that can prevent free manipulation in out-of-the-way places.

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Pneumatic Cushions and Mattresses

The Pneumatic Mfg. Co., of 526 Seventeenth St., Brooklyn, N. Y., has an extensive line of pneumatic yacht cushions and mattresses, and manufactures as well several types of spray hoods. The cushions are fitted with life lines so that they may be used as life preservers in case of necessity, and it is stated that a cushion one foot square will float the heaviest person. The spray hoods put out by this concern are constructed of a government standard khaki duck in two weights, eight-ounce and ten-ounce, which is specially treated and with ordinary care is declared to be both mildew and rot proof, as well as absolutely waterproof.

Curtiss Marine Plumbing

The J. H. Curtiss Co., Inc., of 2 South St., New York, has put on the market a new pump closet for small and medium-sized boats. This new fixture is declared to possess all the practical advantages of this concern's best types, having a large flush and working easily and noiselessly. Nothing but brass and porcelain is used in the construction of this closet, which is so designed that it may be installed ready for use without the aid of a regular plumber. By the use of special couplings one is enabled to slip the lead pipe through the connecting tail pipe or coupling, turn the end of the pipe over and screw up the coupling nut, completing the job. Because of its ease in installation this fixture is known as the Lead Pipe Cinch.

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Crockett Varnishes

Three of the leaders in the line of marine varnishes made by the **David B. Crockett Co.**, of Bridgeport, Conn., are Crockett's Spar Composition, No. 1 Preservative and Waterproof Floor Finish. Spar Composition is a varnish for all exterior work, which is declared to be absolutely impervious to the effects of salt or fresh water, and the maker states that it will not crack, blister, spot or scale, and cannot turn white. It will set dust-free in eight hours and dry hard in thirty, but is not recommended for interior work, unless there is ample time for it to dry thoroughly. No. 1 Preservative is the Crockett varnish for interior work, and for this preparation the claim is made that it is less liable to mar and scratch than any finish known. It can be rubbed and polished or left with an eggshell gloss, and will dry hard in twenty-four hours. The third of this well-known trio is the Waterproof Floor Finish which is a tough, elastic varnish for finishing floors.

The Speed Booster

The Reflex Ignition Co., of 211 High Ave., Cleveland, O., has a very complete line of spark plugs, and also carries a number of specialties for motor boat use. One of the latest devices marketed by this concern is the Speed Booster. This is a device for attachment to the intake manifold for the purpose of supplying additional air to the mixture and breaking up the gasoline molecules so that they will burn more readily. It is claimed for this device that by its use a great economy in gasoline consumption is effected, while the formation of carbon is reduced to a minimum, and the motor is given greater range and flexibility. The Speed Booster, which may be readily attached by any one, is sold for $2.50.

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The Yankee Muffler

The Yankee Co., of Utica, N. Y., manufactures a marine muffler which is declared to silence the exhaust of any two or four-cycle motor without back pressure. The muffler is constructed with an expansion chamber, into which the gases enter and expand until the force of the explosion is lost, the remainder of the muffler being taken up by the silencer proper which breaks up the explosion into atoms and prevents sound. The Yankee is constructed of galvanized iron, lined with asbestos for the full length and relined with sheet steel, well riveted. The construction is such that all or part of the circulating water from the engine may be run through it.

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Masten Tops

The line of boat tops manufactured by the **Theodore H. Masten Co.**, of 123 West 52nd St., New York, includes folding tops for runabout use, spray hoods of various types, cockpit covers, etc. In general it may be said of Masten tops that all bow fixtures and fittings are made of heavy polished brass, and are practically indestructible; that the bows are of white oak highly polished and that all curtains are detachable and well lighted with celluloid. The tops are held in position with guy ropes that work through brass automatic clutches.

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Oshkosh Marine Hardware

The Oshkosh Marine Supply Co., of Oshkosh, Wis., carries a full line of marine hardware and supplies. One of this concern's specialties is a special equipment for Class 1 motor boats measuring under 26 feet. This equipment consists of brass lights, life preservers, signal whistle and liquid fire extinguisher, and is sold for $20. Similar outfits are got together to fulfill government requirements for Class 2 and Class 3 boats. The Kay taffrail log, handled by this concern and shown in the accompanying illustration, is sold complete with 100 feet of line for $5.50 and is considered a highly reliable instrument.

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The S-P Vaporizer

This device, manufactured by the **S-P Vaporizer Co., Inc.**, of New York, is designed to eliminate the danger of backfire, and to deliver a perfect mixture to the cylinders of the gasoline motor. It is substituted for the gasket already in place between the carbureter and intake pipe, requiring no modification of existing parts. As originally brought out, this vaporizer consisted of two layers of fine wire gauze with a composition atomizing ball between them whose purpose was to strain the mixture so that all streakiness was eliminated, producing a perfect mixture. Since its first inception this composition ball has been replaced by a metallic device which is stated to give greater permanency and efficiency.

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Carpenter Products

Geo. B. Carpenter & Co., of 430-440 Wells St., Chicago, Ill., carry a very complete line of marine accessories, of which some of the more prominent are their special motor boat lights, electric post light, searchlight control, bronze mooring bitt, etc. Their seamless aluminum ventilator, which is shown in the accompanying cut, has also met with considerable popularity. This ventilator is made of polished aluminum with brass deck plate and key, and it is declared that it is of such strength that an ordinary blow will not dent it. It is made in two sizes, three-inch and four-inch deck plate diameter, and is furnished in black enamel finish to order.

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Nobind Stuffing Box—Superior Cushion

Two items which are featured for the marine trade by the **Upson-Walton Co.**, of 1204 West 11th St., Cleveland, O., are the Nobind stuffing box and the Superior life preserver cushion or pillow. The Nobind, which is fairly well known to our readers, is a self-aligning stuffing box which contains a universal bearing that can be replaced if wanted without renewing or removing the rest of the box. The Superior pillow is a soft, comfortable cushion which, it is said, will hold its shape and will not mat down. This cushion, which measures 16x16 inches, will support a person in the water for an almost indefinite length of time.

Jeffery's Marine Glue

One of the leading items of the various products handled by **L. W. Ferdinand & Co.**, of 152 Kneeland St., Boston, Mass., is Jeffery's marine glue for filling deck seams and for application to air-tight compartments in combination with canvas, etc. It is stated that fourteen pounds of this glue will run from 200 to 250 feet of seam, three-quarters of an inch deep by one-quarter of an inch wide, and if it has not been overheated in preparing it, and is properly used, will last from four to six years. In preparing Jeffery's marine glue for use it should be brought to a heat of from 250 to 300 F., at which temperature it becomes perfectly liquid, and should be used as quickly as possible, because continued boiling injures the glue. The flexibility of this glue is declared to be one of its most valuable qualities, as it allows the planks to contract and expand, still retaining its adhesiveness to the edges of the planks. Another claim made for this glue is that it does not stick to the feet in hot weather.

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Pyrene Fire Extinguisher

Whatever changes and improvements there may be in boat or engine design, the danger of fire through carelessness is always present in some degree, and the presence of some type of extinguisher is a practical necessity aboard ship. **The Pyrene Mfg. Co.**, of New York City, has specialized for some years in the production of the Pyrene fire extinguisher and recommends this composition for all kinds of service. Pyrene liquid is a chemical combination of purely organic materials having an aromatic odor and a high specific gravity. It is enclosed in a double-acting, powerful, cylindrical pump, and as the liquid is impelled against the flames it is converted into a dense white gas blanket which settles down on the fire and is stated to smother it instantly. Pyrene is described as non-damaging and non-corrosive, and to be proof against frost in temperatures as low as —50 degrees F.

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Kuhls' Elastic Spar and Other Compositions

H. B. Fred Kuhls, of 65th St. and 3d Ave., Brooklyn, N. Y., has a line of marine specialties which include Elastic seam composition, Elastic spar, anti-corrosive paint, deck varnish, etc. The most recent composition to be put on the market is Kuhls' Elastic spar, which is described as a heavy-body, pale, medium-drying varnish, which is very elastic and will not turn white. All of these qualifications adapt it especially to marine use.

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Non-Fluid Oil and Motorol

Non-Fluid Oil, which, together with Motorol, forms the principal output of the **New York & New Jersey Lubricant Co.**, of New York, is a lubricant that is stated never to melt under the hottest operating conditions, but to lubricate from the instant the motor starts until every atom of lubricant is consumed. This grease is made in several grades, and grade K No. 000, prepared especially for use in compression cups, is put up in three, five and ten-pound cans for motor-boat use. This can, known as the KeJeX, is fitted with a heavy floating plunger which forces the Non-Fluid Oil from the spout by simply turning a key which is supplied with every can. By the use of this can it is declared wastage is eliminated, while the hands can be kept free from grease.

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B. & B. Speed Wheels

The Bryant & Berry Co., of 32 Atwater St., West, Detroit, Mich., is continuing its famous line of B. & B. speed propeller wheels, as well as its extensive marine hardware. The B. & B. wheel is three-bladed, the blades being made with a differential pitch and a concave curve from the hub to the edge of the blade. The outside driving edge is at least seven degrees aft of the forward face of the hub, the object of this construction being to lessen the possibility of forming an air pocket on the forward side of the wheel, and thus reduce the percentage of slip and make the driving side of the wheel work all the time.

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Baker Compasses and Binnacles

George A. Baker, of Melrose, Mass., manufactures a line of compasses and binnacles for motor boat use. The Baker compass, which is of the axial-balanced oil type, is constructed of cast bronze, painted on the inside with white paint of enduring qualities. The outside is finished black with four white lubber lines which, except on one model, are in continuation of the black lines on the inside. The card is very light and does not require a float, this construction, it is stated, eliminating the friction which causes a sluggish card. These compasses are filled with a special colorless oil which is said to remain the same under all conditions.

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Magnalite Pistons

These pistons are manufactured from magnalium metal which is declared to be especially adapted for piston construction, as it has a tensile strength greater than that of ordinary cast iron; one-third lighter weight than the more commonly used metal, and a thermal conductivity of fourteen to one as compared with iron. **The Walker M. Levett Co.**, of Tenth avenue and 36th street, New York, which markets Magnalite pistons, recommends them especially for use in high speed cruising or racing engines, because of the fact that they give an engine greater flexibility and higher maximum speed, while effecting an economy of fuel consumption and reducing vibration and strains on the connecting rods, bolts and bearings.

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Michigan Wheels

The Michigan Wheel Co., of Grand Rapids, Mich., has a very extensive line of solid and reversible propellers, reverse gears, steering wheels, and general marine hardware. One of the wheels, which is known as the Royal, and is intended for racing boats only, is illustrated herewith. This wheel is of true-screw type and the blades have a rake aft which is declared to eliminate the danger of cavitation and reduce the influence of eddies caused by the skeg or the propeller strut. The blades are designed with a pitch ratio of 1.6 and their width is thirty per cent. of the diameter of the wheel. Constructed of bronze, polish and lacquered, these wheels are made for right and left hand, and with two or three blades.

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Sands Plumbing Fixtures

Of all the marine plumbing fixtures manufactured by **A. B. Sands & Son Co.**, of 22-24 Vesey St., New York, none is more widely known than the Knockabout pump water closet. This is a fixture especially designed for small boats, which has been on the market for over thirty years. It has a 2½-inch composition pump attached to a round Vitro-adamant bowl and the supply is controlled by a Sands automatic safety supply foot valve, which is declared to be a positive guarantee against flooding. The price of this closet with rough finish pump, oak seat and cover is $40. Another pump closet, known as the Florida-Electric, has been designed for installation on motor yachts which are equipped with electric systems. This closet, which may be installed above or below the waterline, is operated by an electric motor located directly behind the bowl and connected to the pump by a system of gears and pinions. The price, with pump and electric motor finished in white enamel, with oak woodwork, nickel-plated trimmings, etc., is $200.

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Oil-Groove Piston Rings

The Rittenhouse, Fleury Co., of 316 Holliday St., Baltimore, Md., manufactures the Oil-Groove piston ring which has been designed to insure the proper amount of lubricating oil being carried to the cylinder walls while at the same time preventing the combustion gases from working their way past the piston. These rings are made of the best close-grain cast iron, and are individually cast on eccentric molds. They are then ground inside and out, and to micrometer size in width on a disc grinder. They are cut step lap, and several V-shaped oil grooves are cut in each ring.

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Universal Motor Boat Supplies

A complete line of marine specialties is carried by the **Universal Motor Boat Supply Co.**, of 287 Broadway, New York, including many articles of this concern's own manufacture as well as numerous standard articles. One of the concern's smaller articles which is considered a valuable adjunct of the equipment of a motor boat is the hand vise which is shown in the accompanying illustration. This vise is made of solid steel castings, well tempered, with a heavy spring inside to spread the jaws. The jaws are closed with a bolt and wing nut which permit great pressure to be applied. This hand vise is sold in black finish for seventy cents.

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The Stewart Carbureter

The Detroit Lubricator Co., of Detroit, Mich., manufacturer of Detroit force-feed oilers, is centering a good deal of its attention just now on the Stewart carbureter. This carbureter is declared to involve a principle of operation entirely different from that of any other carbureter on the market. By the use of an automatic metering valve, so-called, which depends for its action on the suction of the motor and its own weight, gasoline and air are accurately measured at any position of the trouble, so that the right mixture is obtained at every engine speed and load.

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Wicker-Kraft Furniture

One of the leading items in the line of yacht furniture manufactured by the **Wicker-Kraft Co.**, of Newburg, N. Y., is the life-preserving chair shown in the accompanying illustration. In addition to being a comfortable wicker chair for deck use, this model is provided with a rack beneath the seat in which a standard type life belt may be stowed away ready for instant use. In this position a life-preserver will occupy no extra room and will be kept neat and clean, so that at the end of the season it will be in as good conditon as when first put in commission. All Wicker-Kraft chairs, with the exception of one model, may be constructed to receive a life belt for $1.50 additional.

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Valspar Varnish

The Valentine Varnish Co., of New York, manufactures Valspar varnish and other products for use on yachts and motor boats. As is well known, Valspar varnish is claimed to give an enduring surface which will not check or turn white under the most rigorous conditions of wind and water. Valspar bronze bottom paint possesses the waterproof properties of Valspar, combined with the anti-fouling quality. It is declared that two coats of this paint applied on any dry surface will keep it free from all traces of barnacles and other sea life for an entire season. It dries down smooth and free from dust in two hours, and may be second coated in three hours. The manufacturing company recommends that the final coat be lightly sandpapered. This composition is packed in quart cans only, and is sold for $6 per gallon.

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Edward Smith & Co. Varnishes

Marinite and Spar Coating are the leaders in a line of high-grade varnishes manufactured by **Edward Smith & Co.**, of Long Island City, N. Y. Marinite is prepared especially for wood and metal work which is under water most of the time. It dries quickly, will stand a lot of rough usage and will not turn white under adverse conditions. Spar Coating is a free-working elastic varnish which dries dust-free in eight hours, and is recommended especially for application to parts that are exposed to the ravages of the weather.

Pyrene fire extinguisher

Michigan Royal wheel

Oil-groove rings on piston

Magnalite piston

Universal hand vise

Bryant & Berry speed wheel

Stewart carburetor

Baker binnacle

Sands Florida-Electric closet

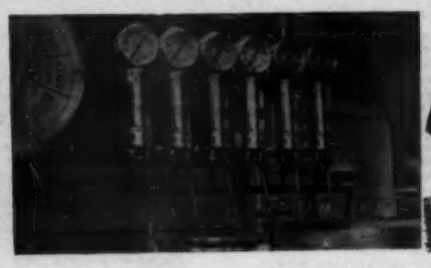
Wicker-Kraft life preserver chair

Sands Knockabout

Plymouth manila rope

Trimount whistle

Safety-First fire extinguisher


Loomis pressure indicator as installed on a motor yacht

Juwel stove packed in case

Plymouth Products

The Plymouth Cordage Co., of North Plymouth, Mass., has an extensive line of ropes for all purposes and recommends its Plymouth Manila rope, Manila boat rope and Manila yacht rope especially for yachts and motor boats. Plymouth Manila rope is a three-strand line which is recommended for all uses where working conditions and requirements do not render a rope of special stock or type advisable. This rope is made from carefully selected and blended grades and marks of manila, and unless otherwise requested contains a certain amount of especially prepared lubricating oil.

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Trimount Rotary Bilge Pumps

These pumps are made by the **Trimount Rotary Power Co.**, of 1343 Columbus Ave., Boston, Mass., entirely of a heavy, durable bronze composition. They are constructed in three sizes, with capacities of six, ten and twenty gallons per minute at 85 r.p.m. The two larger sizes have a suction lift of fifteen feet or over, and the smallest size will lift to a height of six feet. These pumps are designed for hand operation and the crank handles are detachable. The principal features of these pumps, which may be installed anywhere on the boat, are their powerful suction and forcing ability and their ease of operation. Air whistles are also made by this concern.

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Hayward Automatic Wrench

The Hayward Wrench Co., of 700 Cass Ave., St. Louis, Mo., is manufacturing an automatic pipe and nut wrench which is designed on a new principle. This wrench adjusts itself automatically to any nut or pipe within its capacity, and it is declared that it will not crush pipe, although it holds tighter the harder it is pulled. Its quick release is declared to be another point in its favor, and it cannot clog with dirt or grease. The seven-inch size is sold for $1.25, the eleven-inch for $1.75 and the fourteen-inch for $2.25.

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Reliance-Rochester Steering Wheels

The W. S. Hall Co., of 17 Elm St., Rochester, N. Y., puts out a very complete line of marine steering controls for all types of boats. The one shown in the accompanying illustration is made of the same high-grade materials which characterize the other items in this line and is especially adapted to smaller cruisers and open boats. This style, as shown, is supplied with column seven and three-quarters inches from the after side of the hanger plate to the top of the wheel, allowing for a bulkhead of any thickness up to two inches. A polished combination finishing flange and bearing is provided, making a neat and efficient fitting for the after side of the bulkhead.

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Safety First Fire Extinguisher

Because of several distinctive features this fire extinguisher, which is manufactured by the **Hansen-Nister Safety Co., Inc.**, of 103 Park Ave., New York City, is recommended by the makers for use on motor boats. No pumping is required for playing a flame-deadening fluid on the fire, as this liquid is contained in seamless brass cylinders under an air pressure of 105 pounds to the square inch. The capacity of the cylinder is two quarts, and it is declared that a stream is thrown for a distance of thirty-five feet. The Safety First liquid is declared to be a non-conductor of electricity, and it is further stated that it is non-damaging and non-corrosive, and that it will not freeze at a temperature of 50 degrees below zero. This extinguisher is very ruggedly constructed, weighs ten pounds, and is sold for $9.

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The Nautical Delineograph

This is an instrument manufactured by **Eugene M. Sherman**, of P. O. Box 3, Bellevue, Wash., for taking bearings and working chart courses. With the plate positioned on any parallel or meridian, any number of courses may be taken within the range of the instrument, variation and deviation being easily applied with the aid of a movable dial. For taking bearings, the sights are placed in the end of the rule and the long end of the plate set athwartship. If the ship's compass course is west, the dial is placed with west at the notch on the disc and the observation is then taken. By applying the deviation, the hand on the dial will then indicate the magnetic bearing. The price of this instrument, complete in a felt lined mahogany case, has recently been reduced from $10 to $7.

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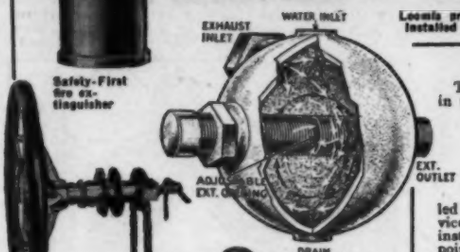
Atlantic Propellers

The Auto Marine Supply Co., of Atlantic City, N. J., lays particular emphasis on its Atlantic propeller as a speed getter. This propeller is of the true-screw principle, and is stated to be equally efficient on the lightest speed boat, or the heavy cruiser, although it is not designed for towing purposes. All Atlantic propellers are made from metal patterns accurately balanced, and they are hand-filed to remove all inequalities, then polished, and when ordered are bored and key-seated.



Reliance-Rochester bulkhead steerer

Thermax silencer

Watertite stuffing box

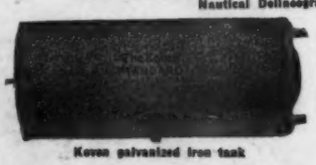
Atlantic propeller

A Columbian bronze rudder

Monarch power bilge pump

Hayward wrench

Nautical Delineograph


Koven galvanized iron tank

Ilanasilk life preserver mattress

Ilanasilk Life Preservers

The Robinson-Rodors Co., of 27 N. J. Railroad Ave., Newark, N. J., is the manufacturer of Universal Ilanasilk life preservers. These preservers are so designed as to make it impossible for the wearer's head to sink below the surface of the water even if consciousness has been lost. Ilanasilk products also include pillows, mattresses, cushions and ring buoys, and are made on the same principle as the life preservers—that is, they are constructed of the finest grade of down which is culled from the silk floss of the Java kapok tree.

The Loomis Pressure Indicator

This is a device for indicating pressures existing in the cylinders of gasoline and Diesel motors at any and all times. By its use, it is declared that faulty spark timing, improper mixture and leaking valves or piston rings can be located and corrected. There is one gauge for each cylinder of an engine, and the whole outfit may be mounted in any convenient place in the engine-room or on the bulkhead pipes, being led therefrom to the individual cylinders. This device is declared to be a great power saver, as it gives instant indication when any trouble develops, and points the way to quick remedial measures. The accompanying illustration shows one of two six-cylinder outfits installed in a large motor yacht. O. P. **Loomis**, of Newport News, Va., is the manufacturer.

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Juwel and Norma Stoves

The Globe Gas Light Co., of 25 Union St., Boston, Mass., is continuing the production of its Juwel oil-gas stove and its Norma alcohol stove. The former of these operates much on the principle of a blow torch, the oil being vaporized and driven under air pressure against a wafer which, having been preheated, ignites the gas and causes it to give off a clear, hot flame. The Juwel stove may now be obtained packed in a neat sheet metal case. As shown in the accompanying illustration, a brass plug is screwed into the reservoir in place of the burner so that oil can be carried in the stove ready for instant use. When it is desired to use the stove, this plug is replaced by the burner, the legs are slipped into position in the grate and the stove is ready for operation

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The Thermex Silencer

This muffler, manufactured by the **Thermex Silencer Works**, of 10 Lewis St., East Boston, Mass., is spherical in shape to give the greatest volume with the least surface. The exhaust inlet is so located in relation to the water inlet that the water and gases are given a circular motion, throwing the water to the shell from which it flows to the open drain in the bottom, separating most of the water from the gas. The exhaust gases are taken from the center of the spherical chamber, where all circular motion has been reduced to nothing. The opening for the exhaust outlet is adjustable, making it possible to reduce the opening to cause just enough cushion in the chamber to change the intermittent exhausts into an approximately continuous flow of exhaust gas.

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Columbian Wheels and Accessories

Columbian propellers, manufactured by the **Columbian Brass Foundry**, of Freeport, L. I., are made in two and three blades and in a variety of patterns for all purposes. Among the best known of this line are the Ailsa Craig, a three-bladed wheel for cruisers; the Architects, designed to meet the demands of prominent naval architects, and of the true-screw type with the greatest width of the blades equal to one-third of the diameter; the Columbian Speed Weedless, a two-bladed wheel combining the features of speed and weedless propellers, etc., etc. In addition to their line of wheels the Columbian people are also well known for their rudders, universal struts, etc.

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Monarch Specialties

The Monarch Valve Co., of 112 Front St., Brooklyn, N. Y., is continuing its line of Monarch carbureters, mixers and other marine specialties. The Monarch rotary bilge pump is a small affair that may be operated intermittently by bringing a friction drive in contact with the surface of the flywheel rim.

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Koven Tanks and Rudders

L. O. Koven & Bro., of 50 Cliff St., New York, have a complete line of gasoline tanks for use on motor boats. These tanks are made of the best quality open hearth flange steel, and the fittings are fastened in such a manner that they will not become loosened. When the tanks have been made they are cleaned and are then galvanized both inside and out. Koven rudders are made of the best refined iron for the forgings and of the highest grade open hearth steel for the blades. The post is made of a solid bar which is accurately machined to fit the rudder blade.

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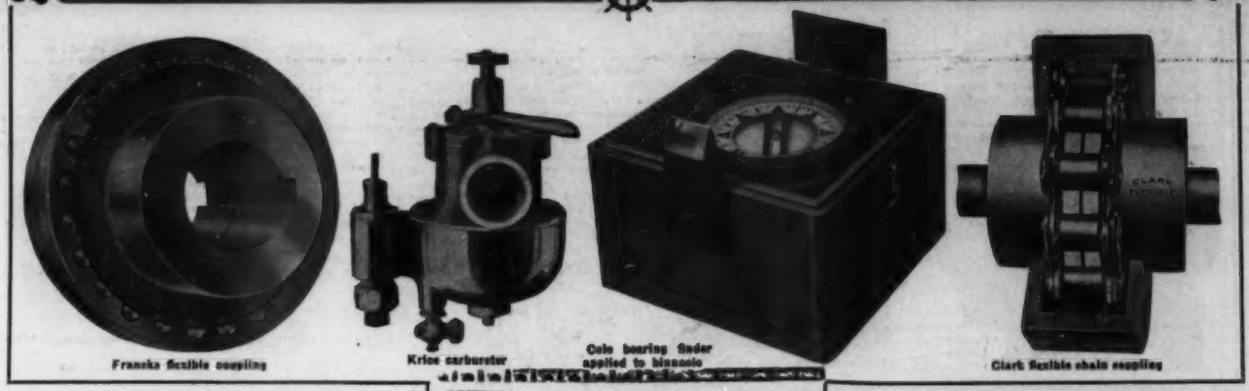
The Watertite Stuffing Box

This is a mechanical stuffing box which is packed with grease that oozes out as the shaft revolves in the right amount required for perfect lubrication. It is designed to prevent water from entering by way of the shaft and to make impossible the escape of any of the grease with which it is packed, while it is said that burning out is an impossibility. It may be installed inboard or outboard with equal efficiency. It is manufactured and sold by the **Watertite Bearings Co.**, of 51 Baltimore Ave., East Detroit, Mich.



Francke Flexible Couplings

The Smith-Serrell Co., Inc., of 90 West St., New York, manufactures the Francke flexible coupling which is claimed to prevent hot bearings, leaky stuffing boxes, binding of shafts and all misalignment troubles. The coupling is usually installed just aft of the engine or reverse gear in place of the rigid coupling, and it is so designed that propeller thrust and reverse pull are taken care of by the central bolt, so that the driving members are relieved of these strains and an extra thrust bearing is not necessary.

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Cole Bearing Finder

The Marine Compass Co., of Bryantville, Mass., manufacturer of the Cole Course Protractor, is just bringing out a new instrument which will interest navigators. This instrument, known as the Cole Bearing Finder, consists of a lens which is attached to the side of the compass box, and is so made that the card, lubber-line and the object on which the bearing is to be taken are seen in one line of vision; in other words, the lens, being in the form of a prism, raises the card and lubber-line to a plane with the top edge of the lens and deck plate, and the lubber-line being placed on the object, the direction is noted from the compass card.

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Randerson Automatic Piston Ring

The DuBois Machine Shop, Inc., of Albany, N. Y., is pushing the sale of the Randerson Automatic piston ring, for which a strong claim to perfection is made. This ring is composed of two concentric unit members, one fitted around the other, with the L or bull ring forming the full width of the groove. The L section is completed by a snap ring, the cross section of the complete ring forming a parallelogram. There is only one opening in this ring, and that is at the top, but the ring is stated to be so designed that no matter how wide the aperture in this opening it will be as pressure-tight as if there were no opening. Owing to the construction of the ring the compression and pressure reach inside of it, causing the ring to seat as well as expand, thus sealing the groove.

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M. B. & S. Specialties

To those who desire a comfortable detachable boat seat, the **Motor Boat & Supply Co.,** of 1405-1411 West Ninth St., Cleveland, O., is recommending its folding portable seat. This seat is fourteen and one-half inches wide and the back is fourteen and one-half inches in height, both parts being upholstered in the best grade of waterproof Fabrikoid. Two compositions of interest to motor boatmen which are put out by this concern are the M. B. & S. marine caulking cement and the C-A-Wood-Preserver.

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Samson Tiller Rope and Cordage

The Samson Cordage Works, of Boston, Mass., makes a specialty of Samson tiller rope for motor boat usage. This rope is the result of exhaustive experiments in material and construction, and is put up with a phosphor bronze wire cable as the center, and a cover of fine cotton yarn, mahogany colored, braided over it. This covering is smoothly finished and is thoroughly waterproof. Made in three sizes, one-quarter, five-sixteenths and three-eighths inch diameter, this line is sold for three and one-half, five and six and one-half cents per foot. Samson solid braided cord is also made for log lines, lead lines, halyards, and for numerous other uses.

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The Krice Carbureter

The Krice Carburetor Co., of Detroit, Mich., is continuing the manufacture of its carbureter with which it is declared to have had a very flattering success. This carbureter has no needle valve, the gasoline being sucked into the mixing chamber through a narrow annular opening, and being drawn up the wall of the mixing chamber by capillary attraction. The gasoline is vaporized very quickly by this method, it is stated, and enters the cylinders in a much dryer form than when an ordinary needle valve is used.

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Cummins Universal Stuffing Box

What is described as the most important of a line of motor boat devices manufactured by **Clessie L. Cummins,** of Columbus, Ind., is the Cummins Universal stuffing box, which has as its exclusive feature an ability to permit the shaft to lift or drop or shift sideways, and at the same time allow the radial action of the ball joint. In other words, this stuffing box is declared to be absolutely self aligning, regardless of how the hull swells or buckles. To install one of these devices, it is merely necessary to set the bearing portion approximately in the center and lock it there by tightening a hand nut provided for the purpose. The base is next bolted to the keel or shaft log, and the hand nut is then released, at which the stuffing box seeks its own alignment.

Randerson automatic piston ring
Hyde two-bladed propeller
M. B. & S. portable folding seat
Lobee rotary pump
Samson cord
Jasco seamless gasoline tank
Wilco combination padlock
McFarland shaft bearing
Plan view of the Cummins stuffing box

Ampco Bronze

After careful experimentation, extending over a considerable period o ftime, the **American Metal Products Co.,** of Milwaukee, Wis., has produced Ampco bronze, which is declared to be the greatest forward step in metal production of the last few years. This bronze contains no tin, zinc, lead or phosphorus, and is declared to be non-corrodible, resisting dilute and strong sulphuric hydrochloric and various organic acids, strong solutions of alkali, carbons and caustic alkalis, sea-water, weather effects, etc. Ampco bronze is made in various degrees of hardness and is used for castings, bearings and other purposes, and in its hardest form can be made into chisels for cutting iron and even mild steel.

Clark Flexible Couplings

A flexible coupling which made its appearance last year and which is declared to have met with marked success is the Clark, manufactured by the **Clark Flexible Coupling Co., Inc.,** of 27 Walker St., New York. This coupling is described as a strong, simple and compact device consisting of two sprocket-cut flanges held flexibly together by a roller chain which allows automatic adjustment to all positions of alignment, thus giving perfect flexibility at all times and in all directions. The rollers of the chain are in contact with all the teeth at one time, insuring an equal distribution of the load with a minimum of wear, while the teeth are provided with clearance to take care of end motion.

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Jasco Tanks

Janney, Steinmetz & Co., of Philadelphia and New York, have added several new stock sizes to their line of cold-drawn seamless steel tanks for the 1916 season. These tanks, as is well known, are tinned with pure block tin to resist the corrosive effects of the acids which are sometimes contained in gasoline, and they are tested to a hydrostatic pressure of 300 pounds per square inch. For motor boat use Jasco tanks are made in all diameters from three to twenty-four inches and in any length up to ten feet. Splash plates are fitted in all tanks over thirty inches in length, and spuds are set as requested.

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Hyde Propellers

In addition to the Hyde turbine type and No-Weed propellers the **Hyde Windlass Co.,** of Bath, Me., is marketing this year a new type of propeller known as the Gale. This wheel is designed to fill the demand for a cheaper wheel than the Hyde, and is, therefore, made of a cheaper bronze, but, while it does not carry the Hyde trademark, the regular Hyde patterns are used. The manufacturer states that this wheel will give good satisfaction although put out in emery finish only, while the same care regarding balance which characterizes the other Hyde wheels cannot be observed at the prices the Hyde company is quoting. This wheel can be obtained in two, three or four blades, and in practically any diameter or pitch from eight up to fifty inches in diameter.

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Wilco Novelties

One of the many recent additions to the stock of marine supplies carried by the **E. J. Willis Co.,** of 85 Chambers St., New York, is the security combination lock, shown in the accompanying illustration. This lock is stated to be temper proof, as it can only be opened by one who knows the combination. It is made of brass, in two sizes. Another item in this company's line is the New Eureka steerer for runabouts. This is a bulkhead style, automobile type steering wheel with spark and throttle controls on top, and is made of polished brass with mahogany finished wood rim.

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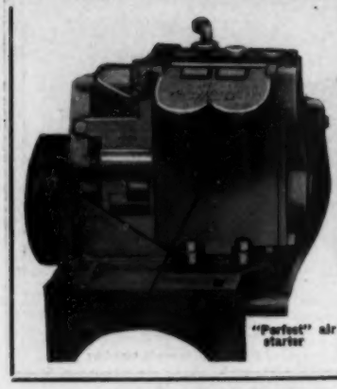
Lobee Pumps

The Lobee Pump & Machinery Co., of 57 Bridge St., Buffalo, N. Y., is manufacturing a line of bilge and circulating pumps which are especially adapted for pumping bilge water and for circulating water or oil in all gasoline motors. These pumps are described as positive in their action, simple in construction, noiseless in operation and of extreme durability, and easily operated either by pulley and belt, sprocket and chain or by direct gear drive. The gear pumps are made of bronze and have two large bearings for each of the two shafts. This design tends to keep the gears in perfect alignment and make them run without sound. The rotary pumps, likewise, have large double bearings.

• • •

Harthan Propellers

These propellers have been on the market for several years and are designed for cruising and towing craft as well as racing boats. The principle of the true screw is followed out in patterns from which Harthan propellers are made, as the manufacturer, the **McFarland Fdry. & Machine Co.,** of Trenton, N. J., has found this type to be the most efficient. The metal used in their composition is a special bronze which is very tough, allowing the use of a thin blade, the edges of which are brought down very sharp to reduce the power absorbing element to a minimum. In addition to Harthan propellers, the McFarland Company has a line of shaft bearings of both single adjustable and double adjustable types, universal joints and shaft couplings.


"Perfect" air starter

Lipman friction-drive pump

Vichek clamping jaw

Tinol soldering outfit

The "Perfect" Starter

This starter, manufactured by the **Motor Compressor Co.**, of 52-60 Dickerson St., Newark, N. J., is of the single-unit type, acting either as an air motor or as a two-stage compressor. The device has four cylinders V-shaped, the two on one side being low pressure, and on the other side high pressure. Connection with the motor is made through a silent chain to the crankshaft, or it may be connected direct or through gears. The pressure of a button on the control valve releases air in the storage tank, which air being led to the starter causes it to act as a compound air motor, spinning the engine so fast, it is said, that there is no slackening of speed on the compression stroke. In order to compress air another button on the control valve is pressed while the engine is running, causing the starter to function as a two-stage compressor; when a predetermined pressure is reached, the compressor button automatically releases, and the starter becomes idle.

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Lipman Bilge Pump

The **Lipman Mfg. Co.**, of Beloit, Wis., manufactures centrifugal, gear and vane pumps in various metals, as well as a line of marine accessories. The power bilge pump as shown in the accompanying illustration is driven by a friction pulley off the flywheel. Ordinarily the pump is idle and is thrown into action by merely tightening a thumb screw. The pump is constructed of brass with an iron bracket, and is sold for $7.50.

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Waltham Chronometer and Clocks

The **Waltham Watch Co.**, of Waltham, Mass., manufactures a box chronometer in response to a demand for an accurate and reliable regulator which could be bought at a reasonable price. The watch of this instrument is provided with two extra long main springs; the winding prong or pendant winds both springs simultaneously and the hands are set by the crown in the usual manner. The movement is enclosed in a dust and weather-proof case with screw back and bezel, and is suspended on gimbals which keep the movement always level. Several small clocks are also put out by this concern, of which the one shown in the accompanying illustration is a good example. This is especially adapted for runabout use, as it may be installed in the control bulkhead, and is practically water-proof. It has a dial opening of two and one-half inches and an eight-day movement and is sold for $25.

• • •

The Walsh Safety Snap

This snap, which is manufactured by the **Walsh Safety Lock Snap Co.**, of Bellevue, O., is described as a self-locking non-fouling snap of great strength and easy action. It is so designed that it cannot catch flying ropes nor open accidentally, while it is declared to be of extreme durability. The springs are made of phosphor bronze and will not suffer deterioration through the action of salt water.

• • •

Negus Nautical Instruments

The list of nautical instruments manufactured by **T. S. & J. D. Negus**, of 140 Water St., New York, includes compasses, binnacles, taffrail logs, barometers, binoculars, and, in fact, everything which might be desired for fitting out a motor boat or motor yacht. One of their smaller binnacles, designed for open boats, is shown in the accompanying illustration. This instrument is constructed of brass and is sold complete with kerosene lamp for $7.

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Bridgeport Bronze Paint

The **Bridgeport Bronze Marine Paint Co.**, of Bridgeport, Conn., manufactures Bridgeport Bronze, which is intended for use on the underbodies on motor boats and other craft. This composition is a wood preservative and offers a means of protection in tropical waters against the teredo worm, but its chief claim to excellence is based on its non-fouling properties. The company declares that when this paint is applied to the bottom of a boat it will be unnecessary to haul out for a whole season, as barnacles and other marine growths cannot attach themselves to any surface which has been painted with this preparation.

• • •

Vichek Tools

The **Vichek Tool Co.**, of Cleveland, O., manufactures a complete line of tools, including wrenches, socket wrench sets, combination pliers, carbon scrapers, screw drivers, chisels, etc., etc., and makes as well the Vichek valve lifter which is declared to be quick acting, and to have a very powerful lift.

Waltham eight-day clock

Nu-Thawt oil cup

Morgan piston ring clamp

Walsh safety snap

A Negus binnacle

The Illinois valve remover

This tool operates on the screw principle, and will hold the spring in any position desired, making it possible for the operator to use both hands for withdrawing the pin from the valve stem. Another device put out by this company which should prove of value to motor boatmen is the Universal clamping jaw shown in the accompanying illustration.

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Marine Upholstering

The upholstering business covers many distinct branches, each requiring specialized training, and for over fifty years the firm of **M. W. Fogg**, of 202 Front St., New York, has been devoting its entire efforts to one part of this business—marine upholstering. The secret of the success of this concern is declared to be summed up in the two words, personal service, Mr. Fogg himself supervising each piece of work and putting his personality, suggestions and ideas into every job. Life preserver cushions have been given special study by this concern, and may be obtained with two types of filling and in several practical coverings.

• • •

Navalite Varnishes

The **Chicago Varnish Co.**, of 2100 Elston Ave., Chicago, Ill., is the manufacturer of Navalite, a marine varnish which is recommended for spars, deck houses, and other exposed woodwork on yachts and motor boats of all kinds. It is declared that it will not turn white and that it will last an extremely long time, whether used above or below the waterline and in fresh or salt water. It works well, has good drying qualities and maintains a permanent luster. Cabinoleum, also produced by this concern, is a varnish for boat interiors. It rubs and polishes well, dries rapidly, and is durable in color. Other compositions put out by this company include Supreme yacht white and yacht black, Flo-White enamel, Ebonl yacht black for a dull or semi-gloss finish, Supreme bronze bottom paint, Eggshell white, etc.

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Tinol Solder Products

Tinol is a soldering metal prepared by **Hess & Son**, of Philadelphia, Pa., which is made up of tin and lead in various proportions to suit the intended use. Instead of these metals being simply melted together as an alloy and shaped into bars, the alloy is finally granulated. Each grain is thoroughly coated with a compound of such nature that although it begins to evaporate before the solder is melted, evaporation is complete only after the solder has again cooled sufficiently to set, with the result that while in its melted state it is isolated from the deoxidizing influence of the air. The compound also acts as a flux, so that no acid or rosin is required. This paste is declared to solder all metals with the exception of aluminum.

• • •

Lonergan Oil Cups

A new oil cup which is declared to have met with exceptional popularity is manufactured by the **J. E. Lonergan Co.**, of 213 Ray St., Philadelphia, Pa. This cup has a self-locking knurled adjusting nut and the filling hole is covered by a slide so that it is unnecessary to screw out a plug when the oil needs replenishing. A feature of this cup is a vent tube designed to prevent the drop of oil on the dropper from being thrown on the sight glass when the explosion gets past the ball check valve. This cup, which is known as the Nu-Thawt, is made in eight sizes from one to sixteen-ounce capacity.

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Morgan Motor Necessities

The **Morgan Mfg. Co.**, of Newport, R. I., carries a full line of specialties for gasoline engines. These include ball joints, carbon scrapers, valve lifters, piston ring contractors, pipe connections, etc., etc. The piston ring contractor shown in the accompanying illustration is composed of several vertical steel straps jointed together by flexible steel cable. The strap on one end is made with two lugs into which a small clamp is hinged; on the opposite end several of the straps are made with lugs into which the clamp screw fits. To use, the compressor is passed around the piston rings as they are in place on the piston, and the clamp having been affixed to the lugs is screwed up slightly. The cylinder is then put over the piston and allowed to slide down, carrying the compressor with it and entering each ring individually as the cylinder reaches and passes over it.

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The Illinois Valve Remover

This valve remover, which is manufactured by **H. G. Paro**, Michigan Boulevard Building, Chicago, Ill., is manipulated by placing one jaw on the top and one on the bottom of the valve spring, permitting the rapid removal and replacement of the valve, also enabling the spring to be held firmly in position until the valve is restored to the engine. This device can be used with one hand, and is declared to be a great time and trouble saver. Both jaws are readily adjustable to any angle, allowing the Illinois to be used with practically any motor. The price is $1.

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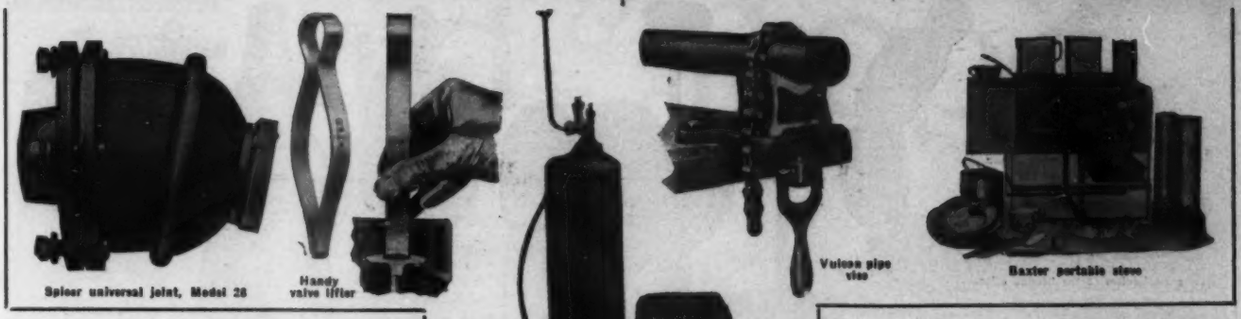
The M. D. Bronze Shaftlog

The **Mechanical Devices Co.**, of Watervliet, N. Y., makes a useful motor boat fitting which it styles a combination shaftlog and stuffing box. The shaftlog proper is made of bronze or of malleable iron plated with nickel and pure copper, and it has a ball and socket arrangement which is designed to align to any angle. The bearing is made of a leaded bronze composition. This fitting is declared to be invaluable to motor boatmen, not only because it insures accuracy in alignment and prevents undue wear and binding, but because a considerable saving of time in installing the propeller shaft is effected by its use.

• • •

Inland Piston Rings

This ring, manufactured by the **Inland Machine Works**, of Eighth and Mound Sts., St. Louis, Mo., is made by cutting a continuous ring spirally for half its circumference and then heat treating. This treatment fixes the tension of the metal, which holds the overlapping ends tightly against each other, making it impossible, it is said, for the gas to escape between them. Being spirally cut, the ring in expanding tends to uncurl spirally, thus preserving a perfect circle, and applying equal pressure to the entire inner circumference of the cylinder. When compressed in the cylinder the gaps almost close, and when the heated ring expands the gaps completely close.



The Spicer Universal Joint

The Spicer Mfg. Co., of Springfield, N. J., offers its Model 28 universal joint as being best adapted for motor boat uses. This joint is provided with a flange coupling and permanent shaft fittings at both ends. It is made for shaft diameters of from three-quarters of an inch up to four inches at prices ranging from $7.50 to $192. This joint is declared to be dirt-proof and oil-tight and extremely durable, owing to the fact that all parts subject to wear are very carefully case-hardened and ground. The company states that various strict standards of accuracy are maintained in its manufacture, and that each part is carefully inspected to make sure that every operation on each is absolutely up to the high standard required.

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The Shaw Centripetal Propeller

The Shaw Propeller Co., of 15 Elkins St., Boston, Mass., is the manufacturer of the Shaw centripetal propeller, which is so designed as to prevent any centrifugal tendency of the water particles passing through the zone of its activity, thus getting a straight reaction in the direction of travel. To obtain this effect the driving surface of the wheel is part of a cone developed in a certain manner, and the back of the blades at their leading portion is also part of a similar conical surface, so that the resulting sections across the blade widths are of most efficient design. The hub is of conical shape, modified to give minimum resistance to its forward translation through the water, this shape also assisting in the centripetal action of the blades. Shaw propellers are made with two and three blades for semi-speed and high-speed craft.

* * *

The Handy Valve Lifter

This is a small tool, designed to extend down into an engine and engage in the slot of a valve, to readily remove it from its seat. Without such a device as this, it is a rather difficult matter to remove the valves from an engine—requiring a lot of patience to get them out by means of screw drivers, pieces of spring, wire, etc. The Handy valve lifter is manufactured by the **Fulton Co.,** of 726 National Ave., Milwaukee, Wis., and is recommended by this concern to every boat owner who grinds his own valves.

* * *

Veeder Speed Counter

The Veeder Mfg. Co., of Hartford, Conn., has on the market an instrument for ascertaining the revolutions per minute made by a shaft, flywheel or any other revolving part. To use this instrument, first note the rating of the register, then, watch in hand, place the point lightly against the end of the revolving shaft, and when the second-hand of the watch has come to zero press firmly on the end of the instrument and it will instantly begin to count. When, at the end of a minute, the pressure is released, the count stops instantly, because the register is automatically disengaged by the spring clutch. The revolutions per minute of the shaft will be found by deducting the rating of the counter at the beginning from that shown at the end of a minute. Two rubber tips, one pointed and the other flat, are furnished with each instrument. These serve as insulators in taking the speed of electric machinery.

* * *

Gill Crankshafts

The P. H. Gill & Sons Forge & Machine Wks., of Brooklyn, N. Y., has a special department for crankshafts and other gasoline engine parts. Crankshafts may be obtained from this concern for any size or type of marine engine, and it is declared that the steel used in their construction is of the highest grade obtainable, being made from the company's own specifications. Only skilled mechanics are employed and all shafts are ground to exact size.

* * *

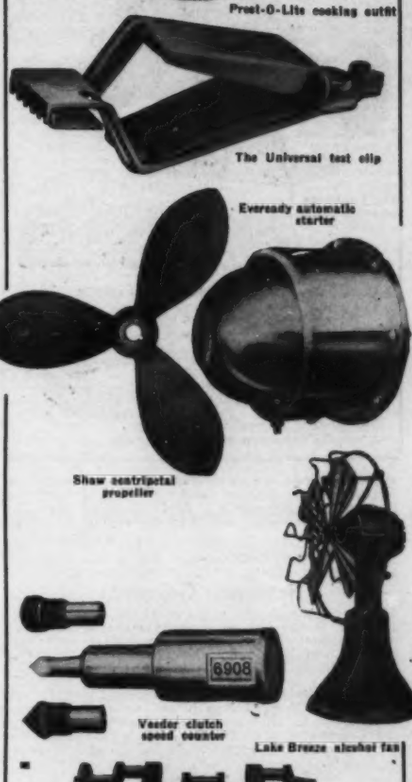
McClellan Tops and Spray Hoods

Chas. P. McClellan, of Fall River, Mass., manufactures a line of high-grade auto boat tops and spray hoods. One of the most important improvements recently applied to the auto boat tops is a patented safety handling device, by which, it is declared, all tops, no matter how large, can be handled by one person, under any and all conditions. In the accompanying illustration is shown a McClellan sliding combination spray hood, which may be used as an awning or as a night or weather cover. When not in use this hood stows very snugly around the washboard.

* * *

The S. & S. Safety Crank

The S. & S. Safety Crank Co., of Ozone Park, N. Y., has put on the market a rear starting device which is declared to give absolute insurance against back-kick while cranking the engine. This starter is constructed of the highest grade material and salt water has no effect on the working parts, as they are made of a non-corrosive metal and are inclosed in a water-proof casing. This starter can be made for right and left-hand motors and in any size. Complete with chain and safety crank ready to install, it is sold for $25.


The Universal test clip
Eveready automatic starter
Shaw centripetal propeller
6908
Veeder clutch speed counter
Lake Breeze alcohol fan
(Above) typical Gill crankshaft: (below) McClellan combination spray hood

The Universal Test Clip

R. S. Mueller & Co., of 423 High Ave., S. E., Cleveland, O., is manufacturing the Universal test clip for use in charging storage batteries on motor boats. This clip is intended to make it unnecessary to wind a snarled tangle of copper strands around the binding post, the wire end being soldered to the clip and the clip being attached to the storage battery lug. This clip is made of copper, and is lead plated to protect the metal from the acid fumes. As may be seen from the illustration, the clip is of the spring jaw type, and the jaws have a spread of seven-eighths of an inch. This clip is also provided in insulated form with a nipple of soft high-grade rubber.

* * *

Socony Products

Polarine Oil is the product of forty years of experience in the production and refining of oil by the **Standard Oil Co.,** of New York, and is stated to be suited to all types of marine engines. Polarine is refined to a very high state and is declared to contain an absolute minimum of carbon, thus tending toward preserving a clean motor, and eliminating sooty spark plugs. This oil is a purely mineral product containing no admixture of vegetable or animal oils, rosins or alkalis. Polarine transmission lubricants are put up in three bodies, light, medium and heavy.

The Lake Breeze Motor

This is a portable fan which is manufactured by **Wm. J. H. Strong,** 124 North Jefferson St., Chicago, Ill., and is designed to run on alcohol. The motive power is obtained from the expansion and contraction of air confined in a carefully ground cylinder in which there are two pistons properly synchronized. While one piston is of the usual plunger type, the other is a displacement piston which serves to transfer the air from the hot end of the cylinder, where it is heated and expanded, to the cool end, where it is cooled and contracted, forming a partial vacuum. The difference in the temperature of the two ends of the cylinder and the expansion and contraction of the air as it moves from one end to the other produce the power to rotate the fan blades.

* * *

Vulcan and Agrippa Tools

J. H. Williams & Co., of Brooklyn, N. Y., manufacture a very complete line of tools and fittings under the trade-marks Vulcan and Agrippa. The tools include all sorts of end wrenches made from drop forgings, single and double end socket wrenches, adjustable face spanners, spark-plug wrenches, etc., etc. For the machine shop Agrippa turning and boring tool holders are especially recommended as being extremely efficient.

* * *

Eveready Automatic Starter

This device, manufactured by the **American Ever Ready Works,** of Long Island City, N. Y., is an automatic starter which the manufacturer states may be effectively applied to marine motors. In its construction two powerful springs are employed. These springs are wound automatically, and are then held by a brakeband, which, in conjunction with a release lever, is connected by a trip cable to a pedal. In operation the pedal is depressed, releasing the brakeband, and the springs unwind, starting the motor. The latter is connected to the starter by an intermediate shaft with universal coupling.

* * *

Baxter Portable Stove

This stove, with which is included a cooking and serving outfit, and which weighs complete only twenty-five pounds, has been designed by the maker, **W. E. Baxter,** of Louisville, Ky., for camping purposes. The stove is small enough to be carried on even a small boat and may be carted ashore and set up ready for use in a very short time. A length of pipe is included in the outfit, as the stove is designed to burn wood, and the other items of the equipment include pots, pans, knives, etc.

* * *

Prest-O-Lite Cooking Outfit

Prest-O-Lite, in addition to furnishing light for cabin and running lamps, can now be used for cooking aboard a small boat, as the **Prest-O-Lite Co.,** of Indianapolis, Ind., has recently gotten out a stove outfit which uses Prest-O-Lite gas. This stove weighs only six pounds and the cost of operation is from eight to fifteen cents per hour, depending upon the size of the flame. The heat of the full flame is declared to be sufficient to boil one quart of water in three minutes. With this outfit it is possible to cook a meal and at the same time use gas from the tank for illuminating purposes, as a special two-way valve union is provided. Complete with special union, hose and lighting attachment, this outfit is sold for $5.80, and the stove and hose, without other attachments, list at $4.50.

* * *

Red Wing Cavel Capstan

This capstan is manufactured by the **Red Wing Iron Wks.,** of Red Wing, Minn., and is so designed as to occupy little space on deck, and yet to do the work required of it. This capstan is fourteen and one-half inches in diameter at the base, and seventeen and one-half inches high. Two horns are provided for taking bar levers, and two men can work together in operating this capstan if the weight of the lift requires it. It is declared that exceptional leverage may be obtained with this device, which is also handy as a holdfast whenever needed. The cost is $12.

* * *

Model E Knox Carbureter

Owing to the rapid increase in the price of gasoline, the **Camden Anchor-Rockland Machine Co.,** of Camden, Me., has hustled forward the Model E-K kerosene carbureter, upon which this concern has been experimenting for some time. This carbureter is designed on the same lines as the Model E gasoline carbureter—a multiple jet instrument, automatic in action—except that before the fuel passes the needle valve it is thoroughly heated by the gases from the exhaust manifold. This preheating is effected by a patented device, which is declared to atomize the kerosene so thoroughly that it gasifies on coming in contact with the air supply as efficiently as could be expected from gasoline. The company declares that with this carbureter kerosene can be handled equally as well as gasoline, and that the motor will be just as flexible and will develop practically the same amount of power without the formation of carbon deposits.

The Climax Oiler

In producing the Climax oiler, the **Climax Brass & Mfg. Co.**, of 1250 West 15th St., Chicago, Ill., has placed on the market a mechanical force-feed lubricator which is the result of long study, experimental work and tests. The Climax differs in many respects from other force-feed oilers, and is declared to have many advantages. It is very simple in construction, with few working parts, and it is stated that an inexperienced man can obtain perfect results from it in the lubrication of his motor. The entire mechanism, illustrated in the accompanying cut, rests on the bottom of the tank and, when the suction of the oil begins, the lift from the measuring plunger which distributes the oil to the various ducts is but a fraction of an inch—just enough to leave undisturbed any sediment that might settle from the oil.

• • •

Bulb Shank Mooring Anchors

The Fairhaven Iron Foundry, of Fairhaven, Mass., manufactures the Bulk Shank mooring anchor, of which the principal feature is the bulb at the end of the shank. It is declared that this bulb, which contains about one-quarter of the weight of metal in the entire anchor, serves two useful purposes—first, preventing the anchor from standing upright on the bottom when lowered; and, secondly, by rising slightly when the boat gives a sharp pull on the chain in a short sea, preventing sudden strains on the holding part of the anchor. Other features which contribute to the Bulb Shank's holding power are the long shank and the shape of the mushroom. It is declared that the shank is long enough so that when a proper amount of chain is used it can never be lifted sufficiently by a boat's rise on a sea to break the mushroom from the ground, while the mushroom has a sharp edge so that it will readily take ground in any bottom on which a fluke anchor would be used. These anchors are made in various weights from fifty up to 1250 pounds.

• • •

Heco Mechanical Horn

The Heinze Electric Co., of Lowell, Mass., is marketing the Heco mechanical horn, which is stated to be positive in action, and to have a wide sound range. This horn is operated by pressing down a spiral handle that engages a ratchet clutch, turning the rotor, which is made of steel hammers that fly out by centrifugal force and whirl against a steel diaphragm. This horn is made of extremely hard metals, but it is declared that should any wear occur it would be taken up by the loose hammers without affecting the sound or work of the horn. The cost is $4.

• • •

Kenyon Boat Tops

The R. L. Kenyon Co., of Waukesha, Wis., manufactures a line of boat tops for use on boats of all kinds. These tops are provided with a flexible covering material which sets smooth when up and compact when folded, and there is no padding to absorb moisture and make the tops cumbersome. An entering device is provided to allow the passengers to enter or leave the boat without folding the top. The frame is constructed of steam-bent white oak bows and rust-proof sockets. This company also makes a line of boat seats and cushions, one of the latter being shown in the accompanying illustration. This is a life preserver cushion filled with a downy, non-absorbent fiber of exceptional life and resiliency. A feature of this cushion is the method of fastening the buttons through it. It is declared that the buttons cannot come off, thus destroying the shape of the cushion.

• • •

Neversink Garments

These garments are made of khaki or blue serge and are lined with a buoyant material—soft and pliable—which is declared to have four times the buoyancy of cork. The Neversink coat, which is illustrated on this page, may be worn just like an ordinary jacket, giving the wearer, it is said, the same freedom of movement, and yet it will float a fully dressed man in the water indefinitely. It is made in all sizes by the **American Life Saving Garment Co.**, of Boston, Mass., and is sold for $15 or $20, according to whether khaki or blue serge is desired.

• • •

Model Y Kingston

This carbureter, manufactured by **Byrne Kingston & Co.**, of Kokomo, Ind., is designed with a view to simplicity, compactness, adaptability and especially to handle low-grade gasoline successfully. All air entering this type of carbureter is taken from a common source, the air inlet being so located as to make it convenient for the attachment of fittings for conducting warm air to this joint. The constant supply of air passes directly over the spray nozzle and the supplemental air supply for higher motor speeds enters the mixing chamber through several bronze ball regulating valves. Owing to this construction, it is declared that a thoroughly atomized spray is produced, making for power and efficiency in the motor. This carbureter is designed with special provision for easy starting.

Youngs' Boat Lumber

Wm. P. Youngs & Bros., of First Ave. and Thirty-fifth St., New York City, have been in business for over fifty years, and supply many of the large boat-building yards with lumber of all kinds. They also cater to the small builder and to the amateur and keep in stock white cedar in long lengths, mahogany, and all other boat woods in a large assortment of sizes. It is one of the cardinal points in their policy to furnish imediate quotations and make prompt shipments.

• • •

Leak-Proof Piston Rings

The Leak-Proof piston ring is a two-section concentric ring which is manufactured by the **McQuay-Norris Co.**, of St. Louis, Mo., and is stated to have many advantages over the ordinary concentric ring. The two sections or halves of the Leak-Proof ring are of angle iron or L shape, this form of construction being considered to have the greatest strength. The two sections have their respective openings 180 degrees apart, and the ring stresses are diametrically opposed, thus giving, it is declared, a perfectly balanced unit of equalized pressure throughout. Having the ring openings at opposite sides of the cylinder makes it practically impossible for gas to escape past the rings, while this construction is also stated to minimize waste of lubricating oil. Leak-Proof rings are made for pistons of all dimensions.

• • •

Monarch Bull Dog Paint Remover

This paint and varnish remover is part of a line of preparations made by **Chas. H. Gillespie & Sons**, of Jersey City, N. J., which includes Monarch spar, Monarch preservative, and Monarch interior finish. Monarch Bull Dog Remover Cream is declared to be absolutely free from alkali, fusel oil, carbolic acid, etc., and to have an odor which is agreeable, although slight. It is declared that it will remove paint, varnish, shellac and enamel, and will not leave a greasy film in or on the wood fibers, nor raise the grain of the wood. It is not readily evaporative and will not grow stale nor freeze in cold weather.

• • •

The Providence Launch Windlass

This windlass is manufactured by the **American Engineering Co.**, of Philadelphia, Pa., especially for use on motor boats and small yachts. It is neat in appearance and has no sharp curves or exposed ratchets to cut or chafe the anchor rode. It is made with a finished shaft, upon which each barrel revolves on two bearings, thus eliminating cramping and undue friction. Another article put out by this concern is the Providence stockless anchor.

• • •

The Gray Hawley Marine Muffler

This muffler, which is manufactured by the **Gray Hawley Co.**, of 937 Jefferson Ave., Detroit, Mich., is designed especially for the modern high-speed runabout or express cruiser, as it can be placed in the useless space under the after deck. A cut-out valve is fitted in the center of the receiving head and when the valve is opened the exhaust passes straight through the head and out of the boat without even a bend in the pipe line. With the valve closed the exhaust enters the first expansion chamber, and thence by an easy curve into the silencer, from which it escapes through the same outlet as it does when the cut-out is opened. This muffler is made in five sizes, running in length from 12 to 36 inches.

A 26-foot stock boat, built by the Dunphy Boat Mfg. Co., one of a line of seaworthy runabouts which are declared to be exceedingly speedy for their length and power. This boat is described on page 34.

Yard & Shop

Shop and landing of the firm A. S. Maritim, of Kristiania, Norway. This concern handles the Sterling engine in Norway, and one of its representatives who has recently been in this country reports active business in his territory

Loew-Victor Has New York Office

We have just been advised by the Loew-Victor Engine Co. of Chicago that arrangements have been completed between them and N. G. Rost, whereby that gentleman represents the Loew-Victor line in the entire Atlantic Coast States and Eastern Canada. The value of such a direct engagement to the boat builder, dealer and consumer alike, is at once obvious. Mr. Rost has been identified with the engine business since its inception, and is probably one of the best-known men in the trade.

It is also to be noted that a well equipped service station has been established in charge of factory experts. The new firm will be known as the Loew-Victor Engine Sales Company, and will have permanent offices in the Equitable Building, 120 Broadway, where a cordial welcome is extended to every one.

Snap Shot, a speedy little hydroplane powered with a Kermath motor

U. S. Government Orders Saint Louis Craft

Colonel Richie, United States District Engineer Officer, stationed at Galveston, has placed an order with the St. Louis Yacht & Boat Co. for one of the latter's stock model modified V-bottom 31-foot hunting cabin cruisers, powered with a four-cylinder Van Blerck, which drives this attractive Southern cruiser 17 miles per hour. The new government boat is a duplicate of that building at the same works for W. G. Selby of Marietta, O., who will use his boat for fishing and quick trips out of Tampa, Fla.

New Coast Agency for Sterling

An agreement has just been consummated between the Joe Fellows Yacht & Launch Co. of Los Angeles, Cal., general distributors for Southern California for the Sterling Engine Co., and the San Diego Marine Construction Co., San Diego, Cal., for the handling of the complete line of Sterling engines in San Diego and vicinity.

Leece-Neville Starter Furnished with Many Motors

The popularity of the Leece-Neville electric starting and lighting systems in motor boats has greatly increased during the 1915 season, according to the Leece-Neville Co. of Cleveland, O., which announces that the following prominent engine manufacturers are furnishing their engines equipped with Leece-Neville electric starting and lighting systems: Buffalo Gasoline Motor Co., H. C. Doman Co., Erd Motor Co., Fulton Mfg. Co., Gray Motor Co., S. M. Jones Co., Kermath Mfg. Co., Loew-Victor Engine Co., Peerless Marine Motor Co., Red Wing Motor Co., Scripps Motor Co., Van Blerck Motor Co., Wisconsin Motors Mfg. Co., and a number of others.

Evinrude vs. Colorado River

When the Colorado goes on a rampage its antics are sometimes remarkable. Recently at Austin, Tex., after a heavy rise, an unusually large quantity of drift was packed in behind a boat-house so tightly that a man of average weight could easily walk on it. The question arose as to how the drift was to be removed. F. C. Olsen, the Austin representative of the Evinrude outboard motor, got on the job in a hurry, forcing his boat through the tightly packed mass again and again, and in four hours and a half the big field of drift was cleared away. Thousands of spectators—it was a Sunday afternoon—lined the river banks and watched with a great deal of interest, and not a little wonder, the rather remarkable performance of the little detachable motor.

Cox & Stevens Report Many Sales and Charters

Messrs. Cox & Stevens of New York City report that their brokerage has been unusually busy and that they see every indication of a great renewal of interest in yachting. Many steam yachts and a number of motor yachts and auxiliaries have been sold or chartered through this agency recently, including Invader, Savanna and Windward, auxiliary schooners; Awa and Lodona, motor houseboats, and Maris, Beluga, Mustang and Chipper, all motor boats of good size. Cassandra, a high-speed 55-footer, formerly owned by H. P. Whitney, has been sold to August Heckscher for ferry service.

Considerable Testimonial

Sidney H. Cluxton of Bobcaygeon, Ont., has written the Kermath Mfg. Co. of Detroit, Mich., a letter which strikes us as being considerable testimonial. In the course of this letter Mr. Cluxton tells how he felt the need of a reliable engine and purchased, in April, 1914, a 12 h.p. Kermath for installation in his 26½x5-foot boat. To quote his words: "From the first day until July I had to make two trips every day, carrying twelve to fifteen men to work four miles, besides making one or two extra trips towing my seven-ton scow with building material for the construction of Hon. A. E. Kemp's summer home on Pigeon Lake. My engine has driven this boat well on to 5,000 miles in 1914 and 1915 up to date. It has never been out of the boat both seasons, nor has it been necessary to make adjustments and repairs."

Saint Louis Sales

The Saint Louis Yacht & Boat Co. of St. Louis, Mo., reports the sale of one of its new 40-foot modified V-bottom military type express cruisers to Alfred I. Du Pont of Wilmington, Del., and of one of its 31-foot Sea Rover type runabouts to E. M. Goodall of Sanford, Me. The Du Pont boat, which was shipped October 3, is equipped with a six-cylinder Van Blerck engine which drives it 18 miles per hour. The Goodall boat, which is to be used in Florida, is powered with a four-cylinder Van Blerck, giving a speed of 23 miles. Both of these boats are built especially for rough water usage, and both of them also, are stock models.

A fast V-bottom runabout recently constructed by the Saint Louis Yacht & Boat Co. for a Western yachtsman. This boat is powered with a Scripps motor

A. S. Gillespie Passes Beyond

It was with profound regret that we learned recently of the death of Alanson S. Gillespie of the firm of Charles H. Gillespie & Sons. Mr. Gillespie, who was in his forty-seventh year, was active in the marine industry, and his many friends will miss his presence among them.

From Cleveland to Florida

A party of four people, comprising Mr. and Mrs. Barnes and Mr. and Mrs. Zimmerman, has left Cleveland to cruise to Florida and up the Atlantic Coast in a motor boat. Mr.

Two views of the new storage battery plant which is under construction for the Prest-O-Lite Co., Inc., of Indianapolis

Barnes is manager of the Motor Boat & Supply Co. of Cleveland, O., which concern does considerable business in the South, and it is his intention to introduce this concern's detachable folding seat, which has already met with approval, together with others of the firm's lines.

Fast Runabout for Burlington Bay

C. F. Adamson of Hamilton, Ont., is the owner of a strikingly handsome new runabout, designed and built by the Askew Boat Works, also of Hamilton. The boat is 28 feet long by 5 feet beam, and is a pure displacement type hull, constructed of solid mahogany throughout. Her power plant consists of a four-cylinder Model B 5¼x6-inch Sterling motor, which gives her a speed of 24 miles per hour.

Gotoit

Among the successful express cruisers of 1915 Gotoit, owned by H. E. Rogers of Brookline, Mass., is considered to stand in the front rank. Gotoit is 33 feet long and was built by Britt Brothers of West Lynn, Mass. The power plant is a semi-speed six-cylinder Series B Scripps, completely equipped with electric starting and lighting system. The cruiser is capable of 17 real miles per hour.

Beating Them at Their Own Game

Sidney Unger of South Bend, Ind., is the owner of the motor boat shown in one of the accompanying illustrations, which boat is powered with an 8 h.p. Ferro motor. In the Fourth of July races at Diamond Lake, Mich., Mr. Unger, owing to an attack of rheumatism, was unable to enter his boat, but his two daughters, Frances and Sophia, took matters into their own hands and were at the starting line, engine running, when the gun was fired. Although without previous experience in racing they forced their boat ahead and by the time the home stretch was reached had succeeded in passing all but two of the twenty starters. Of the remaining two one was passed without much difficulty, but the other, a hydroplane with many times the power of the little Alice, succeeded in nosing her out at the finish line. As it was, however, the crowd was with the two girls who had made such a game fight, and a handsome silver cup was awarded to them. The boat, Alice, is a heavily-constructed 21-footer with 5½-foot beam, but the little Ferro, we understand, drove her over the course at a 12-mile rate.

New Boat Puts It Across

Every now and then some one puts across a new design of motor boat that gets unusual results. The latest accomplishment of this kind hails from Elizabeth City, N. C., where Capt. Thomas M. Hayman designed and built Slide, a little V-bottom boat, 16-feet and 8-inches long by 5-foot 6-inch beam, which is declared to make a speed of 31½ statute m.p.h. Capt. Hayman was inspired to undertake a design of his own when some alien speed kings came into Lizzie City and cleaned up on most of the local boats. The Captain said nothing to his friends, but went heartily to work, and when his boat was launched the natives sat up and took notice. With a four-cylinder 28 h.p. Red Wing Thorobred motor installed he made the run from Elizabeth City to Norfolk, a distance of 32 statute miles, in one hour and fifty-five minutes, actual running time. In various matched races of the past summer, Slide was able to run away from the field and take all honors. Such is the efficiency of this boat and power plant, that it is stated that with three passengers aboard Slide does not drop more than twenty seconds to the mile below her fastest racing speed.

Wilmarth & Morman Busy

The Wilmarth & Morman Co. of Grand Rapids, Mich., manufacturer of W. & M. reversing propellers, advises us that its factory is now working twenty-two hours a day to keep up with deliveries. Although this concern is not making special war materials, it has found it necessary to put up an addition to its present shop, which gives fifty per cent. additional capacity.

Sterling Model F

One of the handsomest jobs which has ever come from the shops of the Sterling Engine Co., of Buffalo, N. Y., is the new Model F enclosed 150-200 h.p. engine for express runabouts and cruisers. This model is an entirely enclosed proposition, including the flywheel, electric starter, reverse gear, valves, etc. The oiling system is all of new design which is declared to be absolutely positive and trouble-proof. The construction of this system is such that it is not necessary to maintain over two or three pounds pressure, which is a feature of considerable importance in a high-speed motor. There are eight cylinders having bore and stroke of 5½x6¾ inches, and the motor is designed to develop its maximum speed at 1500 r.p.m. Several of these engines have already been built and delivered to foreign governments for use in fast patrol boats.

A 24-mile Sterling-powered runabout owned by C. F. Adamson, of Hamilton, Ont., and used on waters of Burlington Bay

Assignee's Sale

For the benefit of the creditors the stock of motor boats, brass goods, covers, lanterns, canvas, etc., possessed by the firm of Emme, Young & Co., of New York City, was sold at public auction on November 17. H. Howard Babcock was the assignee and Charles Shongood the auctioneer.

Stewart Carbureter Catalogue

The new catalogue issued by the Detroit Lubricator Co. of Detroit, Mich., and descriptive of this concern's Stewart carbureter, is considered to be a distinct forward step in descriptive literature. The manufacturer has endeavored in this booklet to explain the actual operation of the Stewart carbureter in a manner so clear that even the inexperienced may grasp the idea involved in the Stewart principle, and the actual way in which the gasoline and air are automatically measured.

Show window of the Detroit Boat Co., of Detroit, Mich., which is 151 feet long and carries a complete line of motor boats, rowboats, engines and marine sundries

Bosch Contracts

The Bosch Magneto Co., of New York, announces that it has just signed contracts with three prominent firms in the marine field to use Bosch magnetos for the coming season. They are the Scripps Motor Co., the Continental Motor Mfg. Co. and the Gray Motor Co., all of Detroit, Mich.

Kramm with Bruns, Kimball

H. H. Kramm, who has been closely identified with the marine engine business in Atlantic City and other coast points for a number of years past, has accepted a position with Bruns, Kimball & Co. to look after the Philadelphia branch, located in the Bourse Building. The benefits derived from this connection will be mutual, as Mr. Kramm is well and favorably known in the Philadelphia territory, while he has allied himself with a concern which has a strong organization and a high standing in the trade.

New Harbeck Motors

Further information has come to hand regarding the new Harbeck motors which the Loew-Victor Engine Co., of Chicago, Ill., is preparing to put on the market for 1916 delivery. These new motors which are of the high-speed type only and will be offered in two cylinder sizes and four models are designed by F. S. Deusenberg, whose fame as a marine engineer has spread widely during the last few years. The bare specifications of these four models are as follows: Harbeck 50-75 h.p. having four 4½x6-inch cylinders and weighing 600 pounds; Harbeck 75-110 h.p. with six cylinders of the same specifications, and a total weight of 900 pounds; Harbeck 200-275 h.p. having six 6¾x7¾-inch cylinders, and weighing 2,400 pounds, and an eight-cylinder model of the same cylinder size, which is rated at 275 to 400 h. p., and weighs 3,150 pounds. All of these motors are designed to operate at a speed ranging from 300 to 1500 r.p.m. In design, the four engines resemble each other very closely, the Deusenberg horizontal valve-in-head principle being used throughout.

New Four-Cycle Motor Announced

In response to a demand for a four-cycle motor developing from 12 to 16 h.p., Sears Roebuck & Co., of Chicago, Ill., have designed a motor of this power which has four en bloc cylinders with dimensions of 3¼x4½ inches, for production in the early part of 1916. Not much information has yet come to hand regarding this new motor, but we understand that it will be equipped with a Shebler carbureter and high tension magneto, and will be supplied ready to run with propeller, propeller shaft and stuffing box for fresh or salt water.

A Satisfied Customer

The Gordon Propeller Co., of Cleveland, O., whose new reversing control is described in another section of this magazine, has received a letter from Dr. Thomas T. McNish, of New Brighton, Pa., which contains a strong testimonial for the Gordon reversing propeller. Parts of this letter are as follows: "In regard to the propeller, it proved itself all you claimed and gave me the greatest satisfaction. Its operation was instantaneous and positive. It permitted any speed, and in crowded docks enabled me to handle the boat with ease and certainty. With your device one can easily find the pitch of maximum efficiency, and a stop on the quadrant will keep it constant. This is a great advantage. I used your adjustable bearings inside and outside, and like them well." Dr. McNish also stated that a theoretical objection that he had entertained against the reverse lever had proved groundless.

This little 21-footer, powered with an 8-h.p. Ferro motor, is owned by Sydney Unger, of South Bend, Ind. The owner's two daughters raced her against a large field and captured second place

A 32-foot sloop owned by Norman Dodge, of Block Island, and powered with a 25 h.p. three-cylinder Frisbie. If facial expressions mean anything, this motor has given first-rate satisfaction

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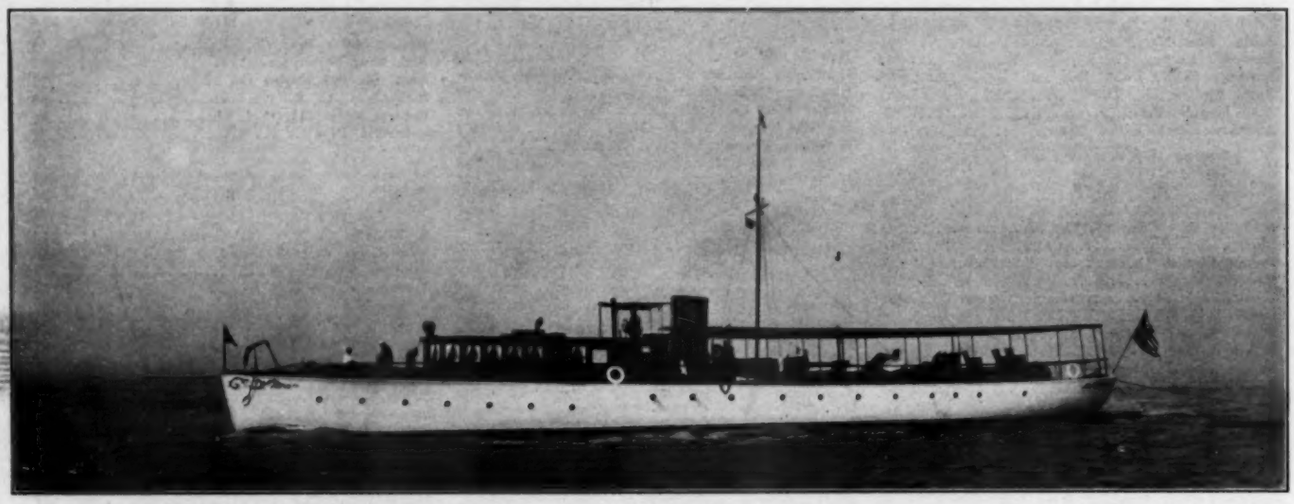
Naval Architects and Yacht Brokers.

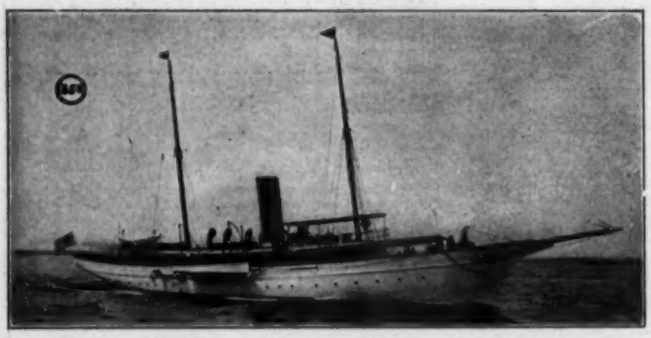
COX & STEVENS

15 William St., New York
Telephone—1375 Broad
Cable—BROKERAGE

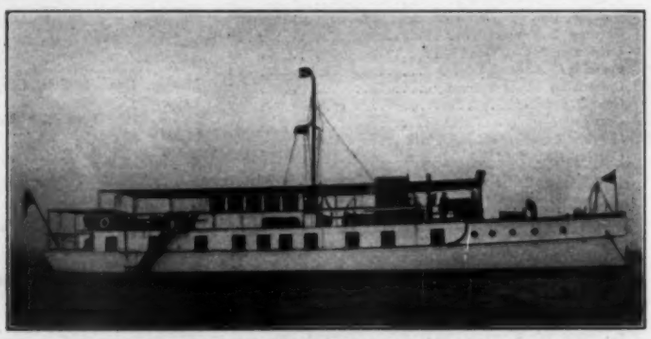
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request. Catalogue illustrating types and sizes of yachts we have for sale will be mailed on application.



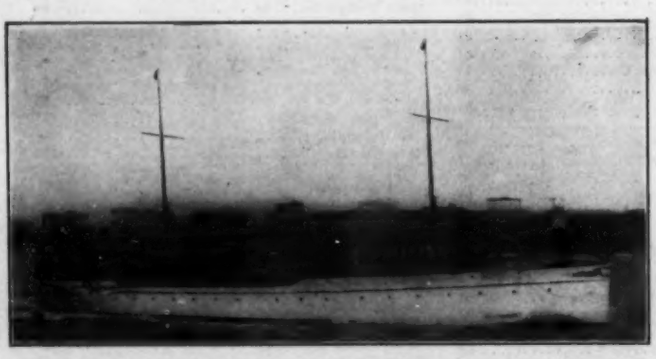
No. 885.—For Sale or Charter.—Handsome fast 120 ft. twin screw, steel power yacht. Speed up to 18 miles. Large dining saloon on deck, three double staterooms, main saloon, two bathrooms, etc. Price attractive. Cox & Stevens, 15 William St., New York.



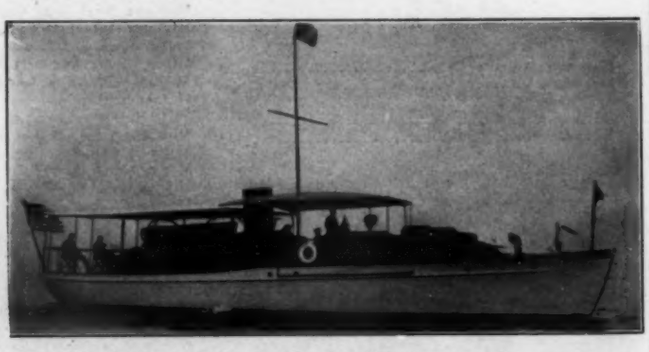
No. 85.—For Sale or Charter.—200 ft. steam yacht, speed 12 to 14 knots. Very able and roomy craft. Price attractive. Cox & Stevens, 15 William St., New York.



No. 2100.—For Sale or Charter.—Modern twin screw gasoline houseboat; 95 x 19 x 3.3 feet. Speed 13-14 miles; two 100 h.p. motors. Large social hall on deck. Dining saloon, four double staterooms, bath, etc. Very desirable craft. Cox & Stevens, 15 Williams St., New York.



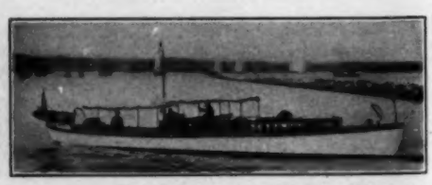
No. 1820.—For Sale.—Especially desirable, up-to-date, twin screw cruising power yacht; 98 x 16 x 4 ft. Speed 14-15 miles. Large dining saloon and galley on deck; four staterooms, two bathrooms, etc. Low price. Cox & Stevens, 15 William St., New York.



No. 2428.—Attractive 75 ft. power yacht; practically new. Highest grade construction and finish by well-known firm. Speed 12 miles. All conveniences. Must be seen to be appreciated. Excellent accommodation. Cox & Stevens, 15 William St., New York.

No. 1127.—For Sale at low figure.—Offshore gasoline cruiser; 75 x 14 x 5 ft. Twin screw; Standard motors. Speed 12-14 miles. Large main saloon; two double staterooms, bath, separate galley; electric lights. Price low. Cox & Stevens, 15 William St., New York.

No. 1467.—For Sale.—Lawley built bridge deck cruiser; 52 x 11 x 3.6 ft. Speed 12 miles. Best craft of type and size available. Now in commission in Florida. Price attractive. Cox & Stevens, 15 William St., New York.



No. 2825.—For Sale at Low Figure.—Day Cruiser, 60x 10.9x3.3 ft.; speed, 12 to 13 miles; 40-60 horsepower; 6-cylinder Standard motor; especially desirable boat for day service or tender to racing yacht; excellent condition. Cox & Stevens, 15 William St., New York.

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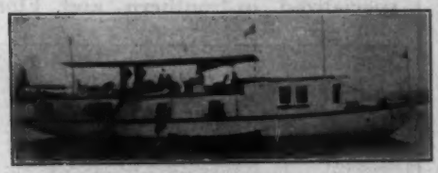
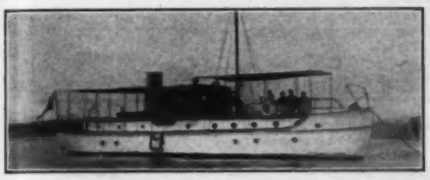
GASOLENE YACHTS

7318.—132x18x6. Herreshoff Coast Cruiser; 4 staterooms; bath; speed, 12 knots.

8112.—75x14x5. Twin Screw; 2 staterooms, bath; two 50 h. p. Standard motors; speed 12 knots. Grand sea boat.



623.—70x21x2½. Twin Screw; 5 staterooms; two 20 h. p. Ralaco motors; speed 8 miles.

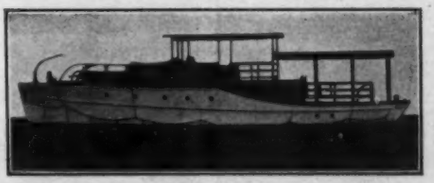


7755.—67x12x3.9. 3 staterooms, bath; 50 h. p. motor.

7874.—57x11x3½. Lawley built; stateroom, saloon, 2 toilets; 25 h. p. Standard motor.

8130.—55x11x4.2. Twin screw; large stateroom and saloon; bath; two 30 h. p. Sterling engines; speed 12 miles.

8102.—55x12x4. Double stateroom, saloon, bath; saloon, two toilets; 20th Century motor.



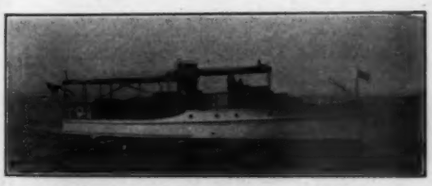
8045.—53x11½x3½. Very heavily constructed; bottom copper sheathed; large stateroom and saloon; mahogany finish; 50 h. p. 6-cylinder Standard. Built for ocean cruising. Offered by estate.

7622.—53x11x3½. Lawley Coast Cruiser. Double stateroom, saloon; 50 h. p. "20th Century" engine.

Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

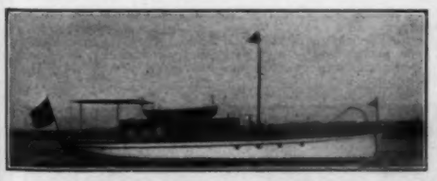
GASOLENE YACHTS



7844.—51x12x2.4. Matthews cruiser; stateroom, large saloon, 2 toilets; 30 h. p. Murray & Tregurtha engine; cost $11,000.

8064.—51x10x4.3. Launched 1915; double stateroom, saloon; 40 h. p. motor.

8161.—52x8½x3.3. Lawley Fast Cruiser; cabin berths 4; speed 15 miles.

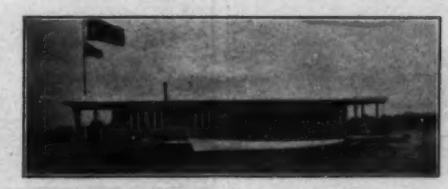


7714.—51x11x3. Cabin berths 4; 32 Standard; speed 10½ miles. Suitable as tender to sailing yacht.

8147.—50x9.2x2.10. Twin Screw Express Cruiser. Cabin berths 2; two 60 h.p. Van Blerck motors; speed 15 knots.

8152.—50x11x3. Express Cruiser, built by Luders, 1914. Cabin sleeps four; 70 h. p. Sterling; speed 14½ miles.

8024.—50x10½x3½. 2 staterooms; 25 Standard.



7659.—50x20. 4 staterooms, bath, 2 toilets. Ideal Summer home.

8107.—47 x 9.10x3. Hand "V" Bottom Express Cruiser. Launched 1915. Stateroom, 2 toilets; 100 h. p. Van Blerck engine; speed 16 miles.

Detailed descriptions of above yachts on file; will be sent by request.

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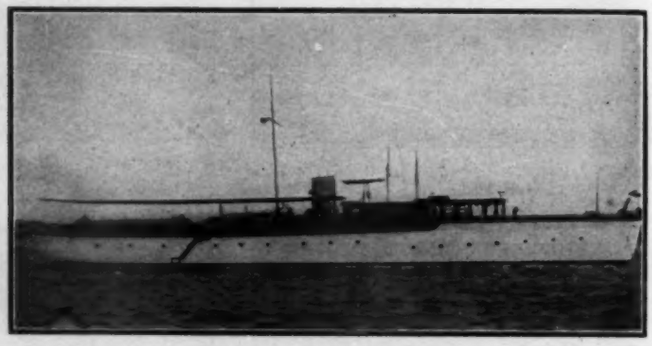
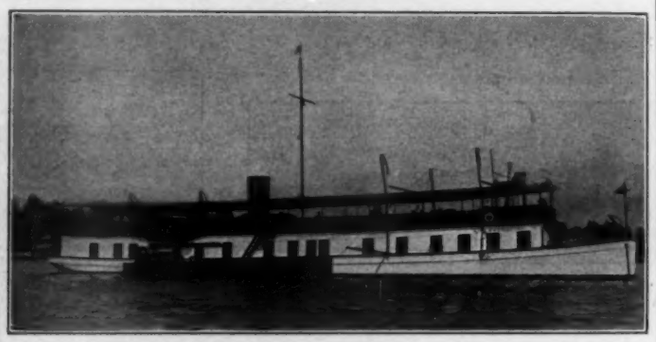
No. 8178.—Sale—Charter—85 ft. modern motor yacht. Excellent accommodations. Standard motor, speed 12 miles. Electric lighted. Large deck space.



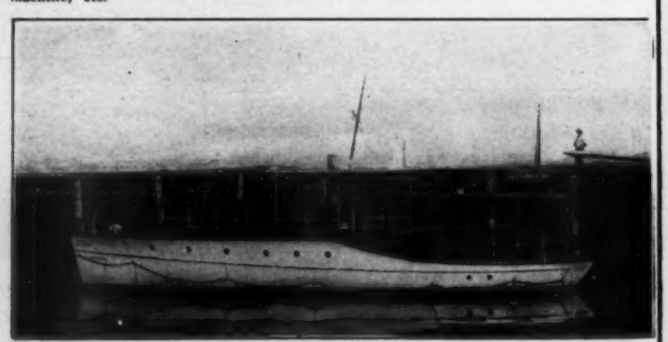
No. 7999.—Sale—Charter—118 ft. fast twin-screw gasoline cruiser; three double staterooms, main saloon, dining saloon; two bathrooms.

No. 7058.—Sale—Charter—98-foot twin-screw cruiser; 2-125 H.P. Standard motors, speed 15 miles. Four staterooms, dining saloon, two bathrooms, four W. Ca. Electric lighted.

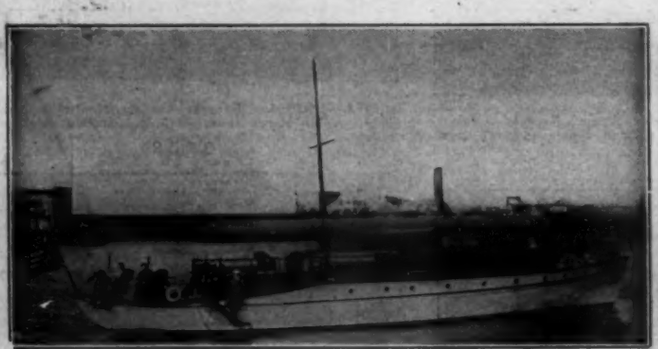


No. 1808.—For Charter—Desirable twin-screw houseboat, 123 ft. by 17 ft. 8 in. by 3 ft. 4 in. draft; four staterooms, two bathrooms, large saloon, electric light plant, ice machine, etc.

No. 8045.—Desirable Day Cruiser—Sterling Motor—Speed, 12 miles. Large cockpit, saloon and toilet room. Price attractive.



No. 8010.—For Sale.—56 ft. Raised Deck Cruiser, especially designed for ocean service. Built in 1910 by Seabury. Two staterooms for owner; four berths for owner's party. Mahogany interior finish. Acetylene lighting plant. Searchlight. Completely equipped galley. 12 ft. power dinghy. 40 H.P. Standard motor, 4 cycle, 6 cylinders. One man control, Bosch magneto. Maximum speed, 10.79 M.P.H. Equipment perfect. Overhauled annually.



No. 7674.—Sale—Charter—Twin-screw gasoline cruiser, 75 ft. by 17 ft. 6 inch beam. One double and one single stateroom, bathroom, large saloon, 20th Century motors.

No. 1860.—For Charter—Houseboat, 70 ft. by 18 ft. 6 in. by 18 in. draft; three staterooms, two bathrooms, dining saloon and deck house.

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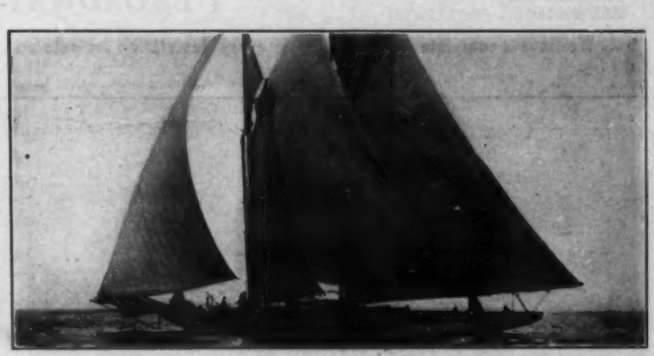
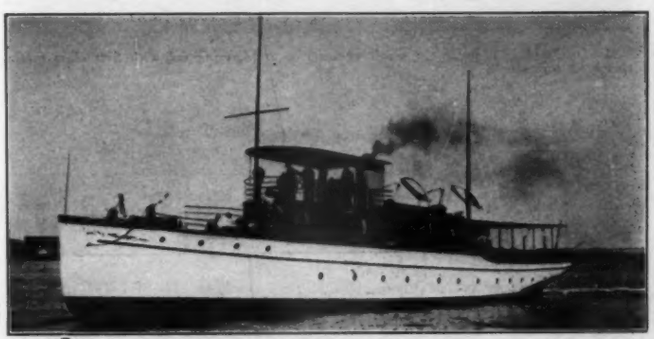
Our long experience as architects and engineers lends an added value to our brokerage service, in expert appraisal and advice, estimate and supervision on alteration, etc.

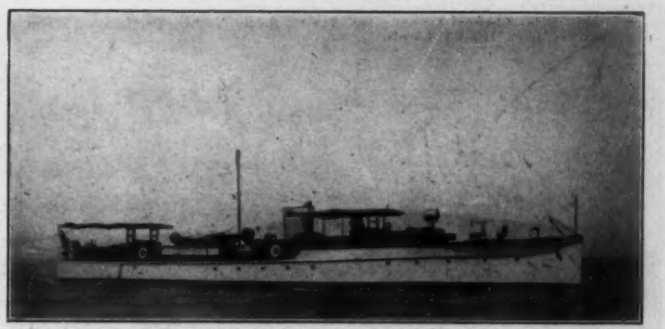
No. 5054.—For Sale—Unusually fine 50-foot bridge deck cruiser; 1914 Sterling engine; speed, 14 miles.



No. 1038.—For Sale.—93-foot over all auxiliary schooner, Lawley construction. New 6 cylinder 60 H.P. motor. Fine accommodations. Excellent seaboat. Fast sailer. Located on Great Lakes.

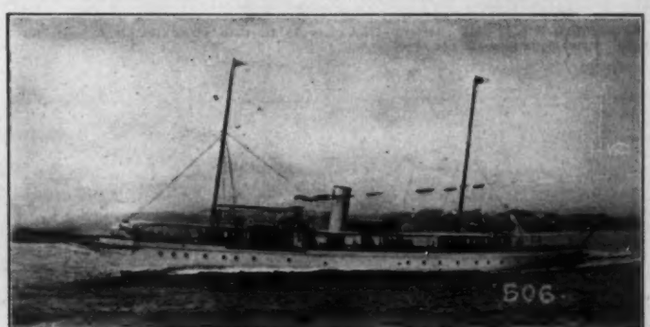


No. 4368.—For Sale.—110-foot steel motor yacht. Speed 14-15 miles. 6 staterooms. Excellent seaboat.

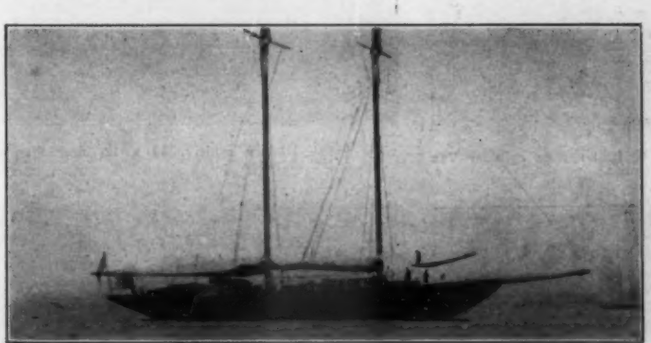


No. 5157.—For Sale.—100-foot motor yacht. Built 1914. 3 staterooms. Construction, finish and equipment high class throughout. Speed up to 30 miles. Best boat size and style available.

No. 4949.—Charter for short or long period.—65-foot twin screw houseboat, 3 feet draft. Now in Florida.



No. 506.—For Sale at Low Price.—180-foot single screw steel steam yacht. Speed 20 miles. 5 staterooms. 3 bathrooms. 2 deckhouses. Large bridge.



No. 2980.—Sale or Charter.—106-foot centerboard auxiliary schooner. Ideal for West Indian cruise. High class throughout.

No. 2958.—Unusual Bargain.—120-foot twin screw express type steam yacht. Speed up to 24 miles. New boiler. Fully found. A-1 condition.

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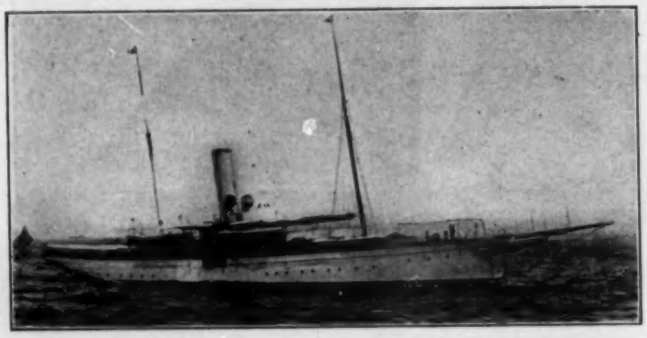
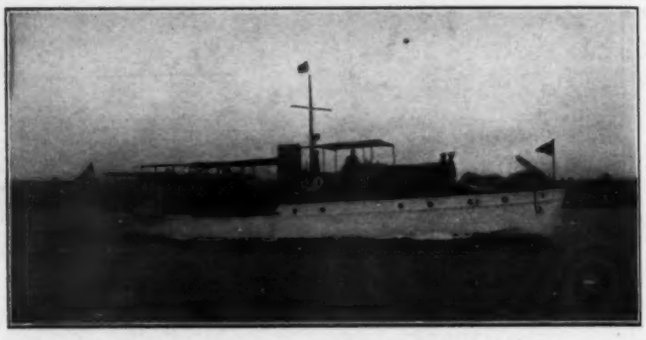
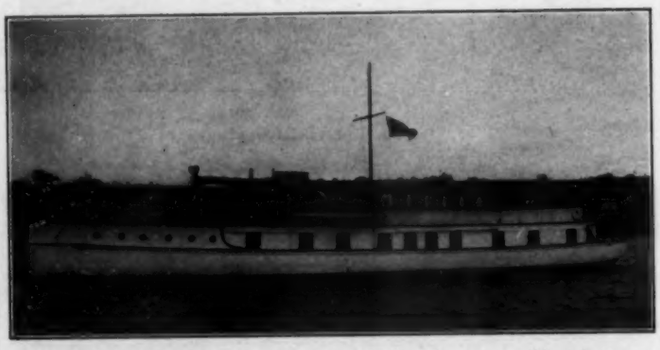


No. 246.—Sale—Charter—Ocean going, 200 ft. Steam Yacht. Comfortable accommodations. Classed 100-A-1 Lloyds.



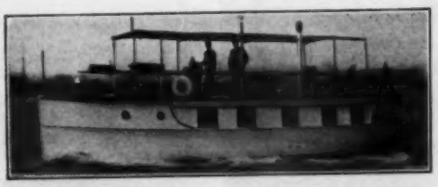
No. 2065.—Handsome, twin screw cruiser, 85 x 14, equipped with first class motor, speed 12 miles.



No. 1872.—For Florida charter.—High-class 95 ft. twin screw semi-houseboat; unusual accommodations.

No. 1950.—Handsome motor yacht, 74 x 14 ft. 6 in., six cylinder Sterling motor. Large accommodations, best possible condition.

No. 1396.—Cruiser, 54x11. Twentieth Century motor with controls on deck. In commission.

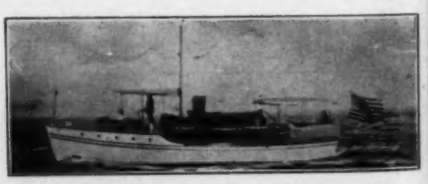


No. 61.—Power Houseboat, 43 x 12.10 x 3, built 1914; Standard motor.

No. 1880.—Able cruiser, 60x12; built 1913; fifty h.p. motor; bridge controls.

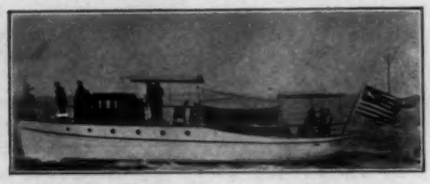
No. 1582.—Trunk Cabin Cruiser, 45 x 8.10. Standard motor.

No. 2126—Fast Cruiser. 47 ft. long, six cylinder Van Blerck motor, speed 16-18 miles.



No. 1890.—Modern cruiser, 49 x 12, new Standard motor, speed 10 miles.

No. 2134.—Fast Express Cruiser, 58 x 11 x 3, two Sterling motors, speed 25/30 miles.



No. 1996.—Raised Deck Cruiser, with deck house, 45.6 x 11; 20th Century motor.

No. 2075.—For Sale.—Bargain figure, 50 x 10.6, power cruiser, similar design famous Bermuda racer.

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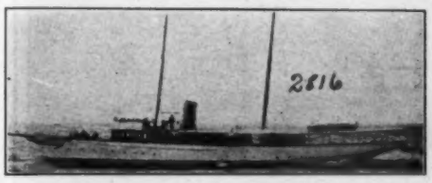
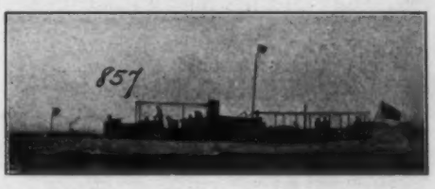
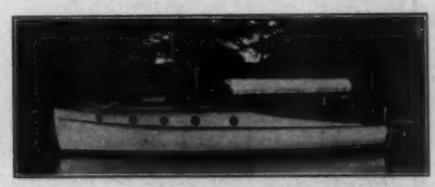


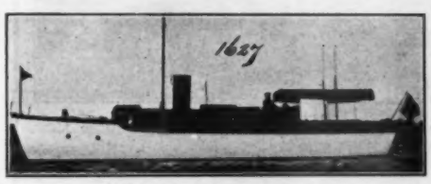
No. 2816.—145-foot steel steam yacht, located California. Owner's quarters consist of five staterooms, dining saloon, social hall, lower saloon. Two bathrooms, mahogany finished. Electric lights. Triple Expansion Engine. Two Water Tube Boilers. Speed 15-17 miles. Fully equipped. Price attractive.



No. 857.—85-foot Gasoline Cruiser. Three staterooms, saloon, bathroom, etc. 100 H.P. 20th Century motor. Speed 12 miles.



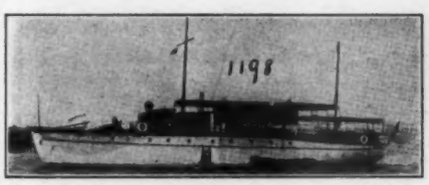
No. 1634.—35-foot Raised Deck Cruiser. Sterling motor.



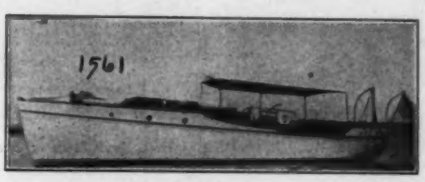
No. 1627.—42-foot Cruiser. Sleeps 4 people. Ralaco motor.

No. 1636—50-foot Cruiser. Stateroom, saloon, and bathroom. Price attractive.

No. 1633.—55-foot Cruiser. Stateroom and saloon with four Pullman berths. Sterling Engine. Speed 11 miles. Price attractive.



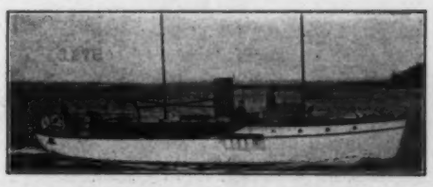
No. 1198.—75-foot Twin Screw Deep Sea Cruiser. Two staterooms, saloon, bathroom, etc.



No. 1561.—45-foot Cruiser. Stateroom and Cabin. Sterling engine. Speed 14 miles.

No. 1380.—43-foot Cruiser. Stateroom and cabin. Sterling engine.

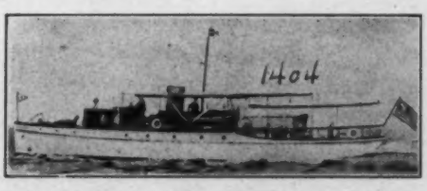
No. 1493.—60-foot Cruiser. Stateroom and cabin, etc. Price attractive.



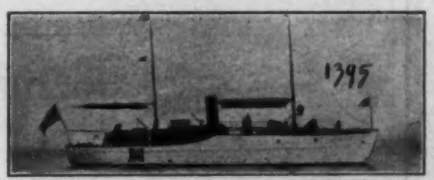
No. 1278.—50-foot Cruiser. Stateroom and cabin, etc. Standard motor. Speed 12 miles.

No. 1463.—40-foot Cruiser. Stateroom and cabin. Sterling engine. Speed 14 miles.

No. 1475.—63-foot Cruiser. Two staterooms, saloon, dining saloon and bathroom, etc. Speed 10 miles. Located in Florida waters.

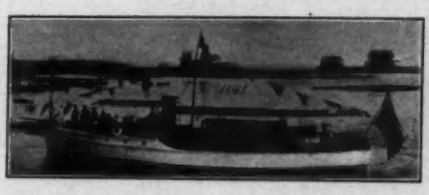


No. 1404.—70-foot Twin Screw Cruiser. Two staterooms, dining saloon, bathroom, etc. Speed 13 miles.



No. 1395.—46-foot Twin Screw Cruiser. Stateroom, saloon, etc. Speed 10 miles. Price attractive.

No. 1534.—43-foot Semi-Houseboat and Cruiser. Large stateroom and saloon. Hot water heat. Speed 9 miles. Ideal for shoal waters.



No. 1148.—70-foot Twin Screw Cruiser. Two staterooms, saloon, etc. Speed 12 miles. Can be bought at a low figure.

No. 1448.—63-foot cruiser. Two staterooms, saloon, etc. Up to date. Speed 11 miles. Price attractive.

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High-Class Yachts of all types for sale and charter

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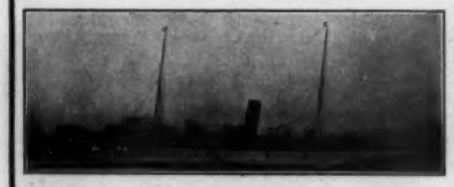
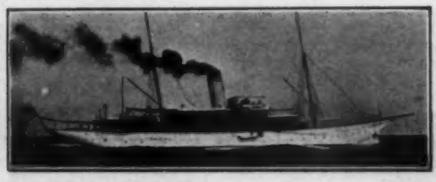
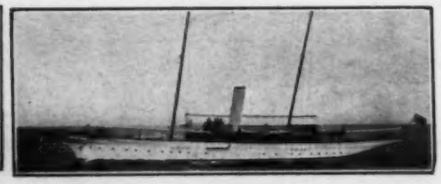


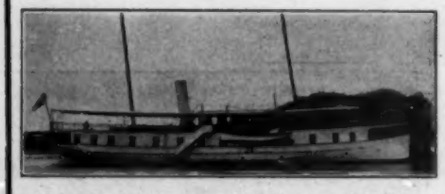
No. 7068—280 ft. Ocean Going Steam Yacht; probably the finest vessel built.



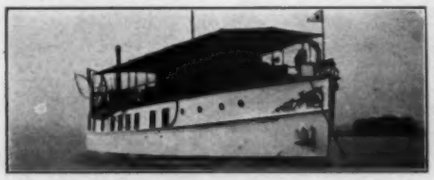
No. 3904—200 ft. Steam Yacht; British build; American owned; good as new.



No. 897—150 ft. Steel Steam Yacht; excellent accommodation; seaworthy.

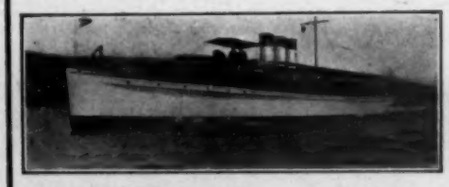


No. 4912—125 ft. Steam Houseboat; steel hull; good speed.



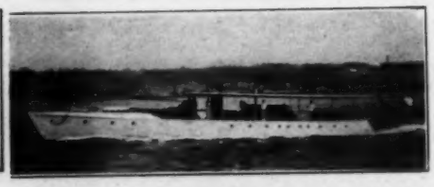
No. 6990—75 ft. Houseboat Cruiser; latest build.

No. 4498—65 ft. Power Houseboat; Lawley build; Standard motor.



No. 6817—140 ft. Express Steam Yacht; best build; 30 miles speed.

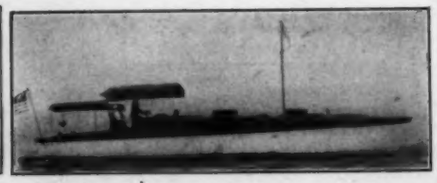
No. 6152—100 ft. Gasoline Cruiser; best yacht of her size.



No. 3945—95 ft. Express Gasoline Yacht; steel hull; twin screw; 23 miles.

No. 7038—75 ft. Gasoline Cruiser; good as new; well arranged.

No. 6099—60 ft. Raised Deck Gasoline Cruiser; double stateroom, saloon and bath; 40-50 h.p. motor.

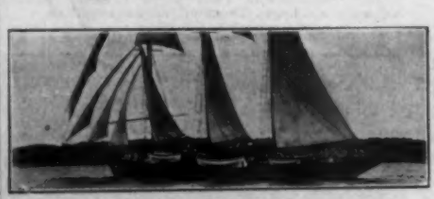


No. 3565—50 ft. Gasoline Cruiser; single stateroom and saloon; bridge and cockpit; well built.

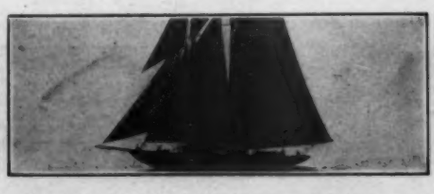
No. 6443—42 ft. Raised Deck Cruiser; stateroom and saloon; Sterling engine; fine boat.

No. 6804—55 ft. Day Boat; 6 cylinder engine; good speed.

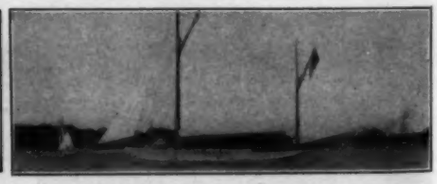
No. 6232—40 ft. Displacement Launch; speed 30 miles.



No. 3506—Steam Auxiliary Schooner; ocean going; probably the best of the type.



No. 4010—Steel Auxiliary Schooner; Standard motor; splendid accommodation.



No. 819—Auxiliary Yawl; well built; good accommodation.

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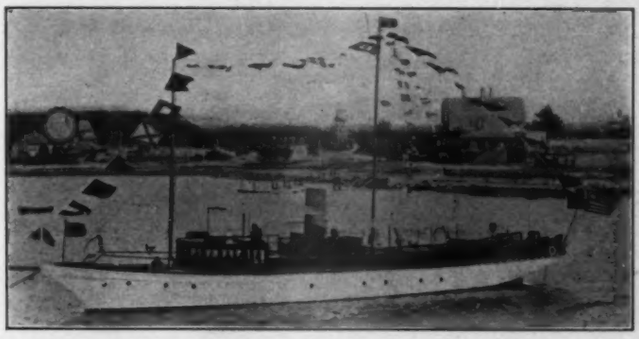
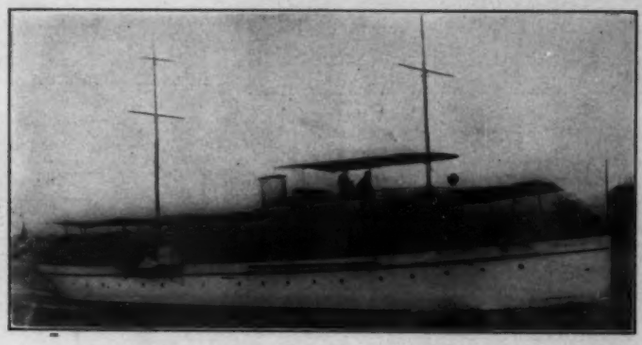
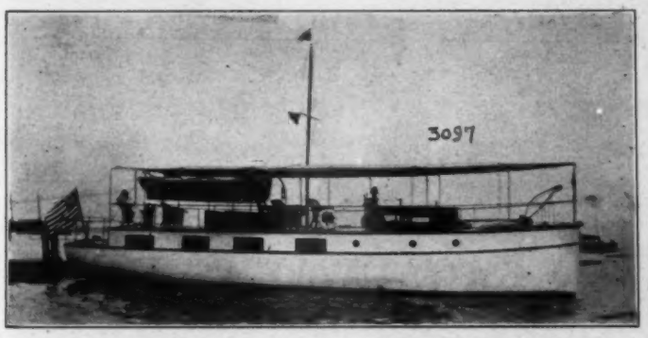
We offer the following craft which are especially adapted for cruising in Florida and other waters in the south. Will be pleased to submit others upon learning of your requirements.



No. 573.—For Sale.—Twin screw power yacht, 90 x 14.5 x 3.2 ft. Speed 11 miles. Large accommodations include dining and main saloon, three staterooms, bath, two toilets, etc. Very economical to operate. Adapted for Florida waters. Cox & Stevens, 15 William St., New York.



No. 1796.—For Sale or Charter.—Very roomy, twin screw cruising power yacht; 99 x 17 x 4 ft. Recent build. Speed 13-15 miles; Standard motors. Large dining saloon, six staterooms, three bathrooms; all conveniences. Cox & Stevens, 15 William Street, New York.

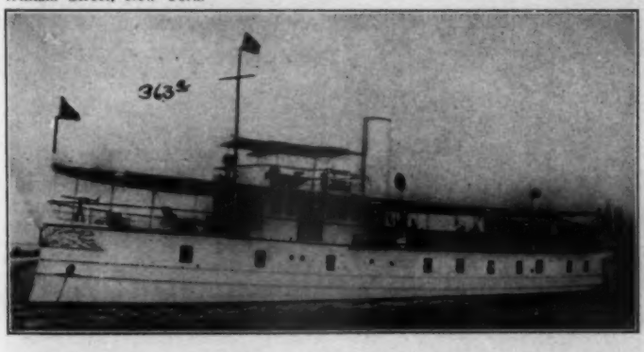


No. 3097.—Houseboat cruiser; 52 x 14.6 x 3 ft. Built 1915. 32/37 H.P. Standard motor; speed 8½ miles. Large saloon, double stateroom, etc. Electric Lighted. Complete equipment. Ideal boat for Southern cruising. Price reasonable. Cox & Stevens, 15 William St., New York.

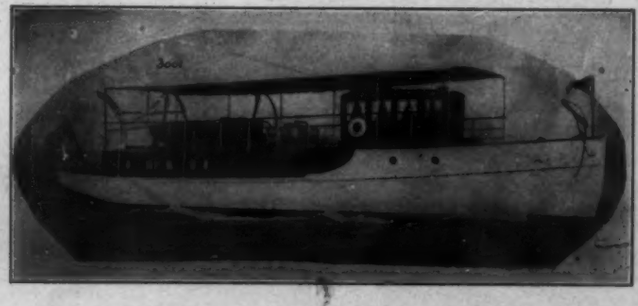
No. 1681.—Exceptionally desirable, twin screw gasoline houseboat, 70 x 16.9 x 2.6 ft.; recent build; speed 10 to 11 miles; Sterling motors; large saloon, three staterooms, bath; all conveniences; bargain for quick sale. Cox & Stevens, 15 William St., New York.

No. 1246.—70-foot gasoline houseboat, suitable for very shoal waters; large main saloon, three double staterooms, bath, etc.; all conveniences. Cox & Stevens. 15 William Street, New York.

No. 345.—For Charter or Sale.—106-foot twin screw gasoline houseboat; now in Florida; large dining and main saloons, four double staterooms, two bathrooms, etc.; terms attractive. Cox & Stevens, 15 William Street, New York.



No. 363.—Most attractive houseboat of large size; luxuriously furnished; all conveniences; must be seen to be appreciated. Cox & Stevens, 15 William Street, New York.



No. 3001.—For Sale or Charter.—Gasoline cruiser (houseboat type), 62 x 15 x 2.10 ft. Built 1913. Speed 9 miles. Three staterooms, large saloon, bath, two toilets, etc. Economical to operate. Price low. Cox & Stevens, 15 William St., New York.

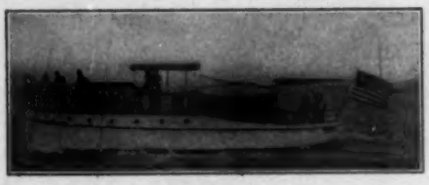
STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

GASOLENE YACHTS

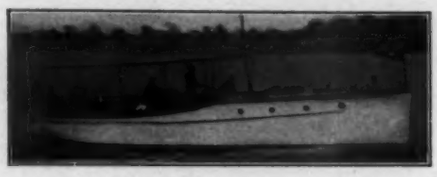
8160.—45x8.10x3.4. Lawley Cruiser. Cabin sleeps 4. 25 h.p. Standard. Speed, 12 miles.

7906.—45½x9x2½. Express Cruiser. Launched 1913. Sleeps 6. Speed, 15 knots.

8182.—45x11x3.2. Launched 1914. Stateroom, saloon, two toilets. 24 h.p. "20th Century" motor.



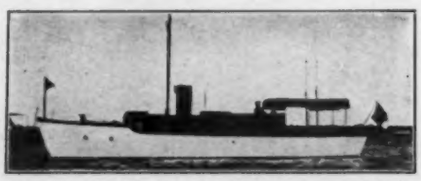
8159.—45½x11x3½. Stateroom, large saloon, two toilets. 20th Century motor.



8125.—45x10.7x3. Elco Cruiser. Launched 1914. Stateroom, saloon, two toilets. 25 h.p. Standard motor.

8054.—45x11½x3½. Matthews Cruiser. Launched 1914. Two staterooms, two toilets. 32 h.p. Standard motor.

7919.—45x8x2. Comfortable cabin, two toilets. 75 h.p. Sterling engine. Speed, 15 miles.



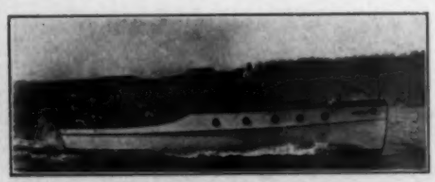
8106.—41.9x9½x3. Cabin berths four comfortably. 20 h.p. Ralaco engine.

3513.—42x8½x3 Seabury Cruiser. Cabin berths four. 24 h.p. Lamb engine.

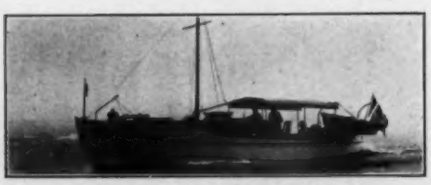
Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

GASOLENE YACHTS

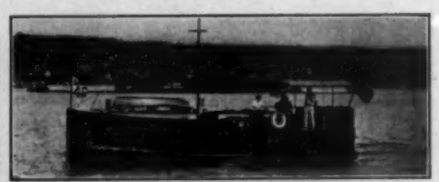


7903.—40x9.2x3.4. Launched 1913. Stateroom, saloon. 45 h.p. Fay & Bowen engine. Speed, 12 miles.

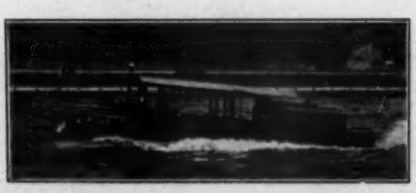


8065.—40x9.2x3.4. Launched 1912. Comfortable cabin. Unusually able sea boat.

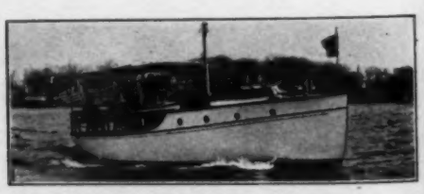
8093.—40x8.4x3½. Launched 1913. Intended for Bermuda cruising. Speed, 12 miles.



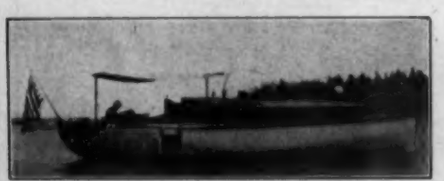
8041.—40x9½x3.9. Built by Luders 1915. Stateroom, saloon. Four-cycle engine. Ocean cruiser.



8155.—40x7½x3. Launched 1914. Two spring berths. Toilet. 150 h.p. 8-cylinder Sterling. Speed, 23 miles.



8128.—40x9.3x3½. Elco Cruiser. Stateroom. 16 h.p. Standard motor.



7872.—40x9x3½. Sleeps five. 18 h.p. Standard engine. Speed, 10 miles.

6083.—40x22. Two staterooms. Bath, large living room, fine upper deck.

8120.—36x9½x7½. Built 1912. Cabin sleeps four. 20 h.p. Ralaco engine.

Detailed descriptions of above yachts on file; will be sent by request.

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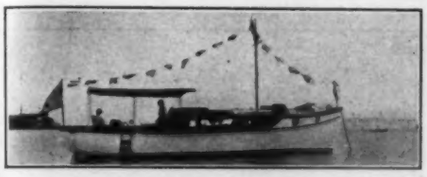
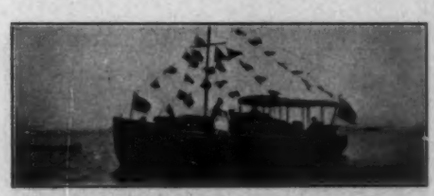
STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

GASOLENE YACHTS



8092.—36x9x2½. Palmer Cruiser. Launched 1912. Stateroom. Saloon. 20 h.p., 4-cycle engine.

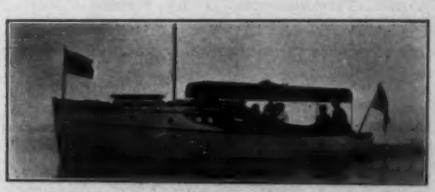
7936.—36x8.3x2½. Built by Mathis Yacht Building Co. 1911. Cabin berths four. 18-25 h.p. Sterling.



8169.—35.9x8½x2.10. Cabin sleeps four. 12 h.p., 4-cycle Buffalo. Exceptionally fine sea boat.

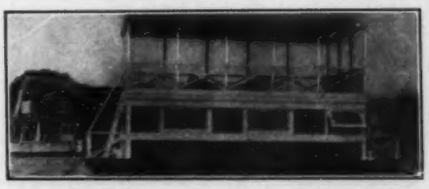
8174.—34x8.4x3½. Hand "V" Bottom Express Cruiser. Built 1914. 70 h.p. Loew-Victor. Speed, 13¾ miles.

7995.—32½x7½x2.2. Express Cruiser. Launched 1915. 65 h.p. Van Blerck engine. Speed, 19 miles per hour.

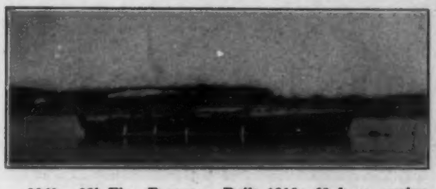


7803.—31x7x2½. Matthews Cruiser. Launched 1914. Cabin berths two. Toilet. 25 h.p. Sterling. Speed, 12 miles.

8099.—30x7x2½. Cabin sleeps 2; 18 h. p. Lathrop engine; new 1915.



8081.—26x10. Built 1913. Comfortable home for two.



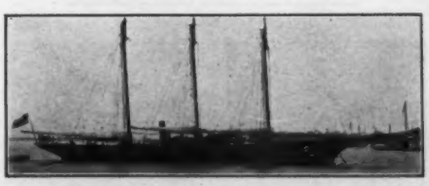
8069.—35' Elco Express. Built 1913; 60 h. p. engine. Speed 23 miles.

Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

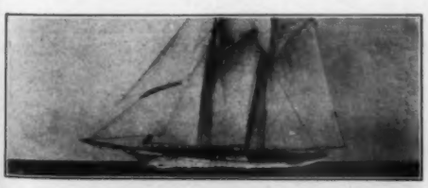
AUXILIARY SCHOONERS, YAWLS AND SLOOPS

11955.—197x150x32½x17. Steel Steam Auxiliary Ocean Cruiser; 7 staterooms and 3 baths; triple engine; Scotch boiler.

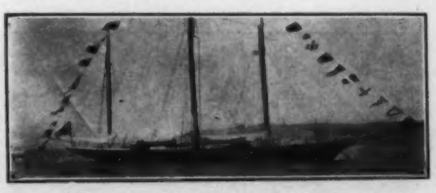


11560.—191x156x27.8x14.9. Steel Steam Auxiliary Ocean Cruiser; 7 staterooms; triple engine; Scotch boiler; cruised extensively foreign.

11648.—163x132x27x13½. Steel Steam Auxiliary; 6 staterooms; triple engine; Scotch boiler; cruised foreign waters extensively.

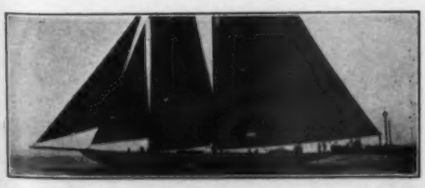


11694.—162x120x28x16. Steel Steam Auxiliary; 5 staterooms; 3 baths; cost $160,000.



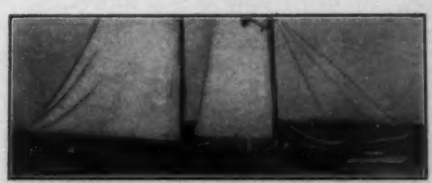
B I.—157½x26.7x17½. English built Steel Twin Screw Auxiliary Ocean Cruiser; 6 staterooms, 3 baths, library; paraffin motors.

11696.—127x87x24.2x16. Herreshoff Steel Seagoing Cruiser; 5 staterooms, 3 baths.



11985.—125x87x25x15½. Steel Flush Deck; Lawley build; 5 staterooms, 2 baths.

11351.—118x80x22x13½. Steel Cruiser; 5 staterooms, 2 baths; 100 h. p. Standard.



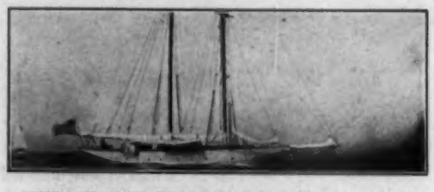
11982.—110½x86x24x6½. Flush Deck Ocean Cruiser; 5 staterooms; 60 h. p. motor.

Detailed descriptions of above yachts on file; will be sent by request.

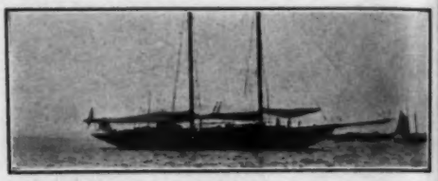
STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

AUXILIARY SCHOONERS, YAWLS AND SLOOPS

11969.—108x78x21x11½. Steel Flush-Deck Seagoing Cruiser. Three staterooms. 75 h.p. Standard.



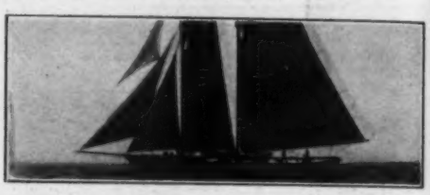
12001.—106½x78x22x12. Flush-Deck Seagoing Cruiser. Launched 1914. Four staterooms. 75 h.p. Standard.



11108.—106½x75x25x5½. Seagoing Cruiser. Three staterooms, two baths. 150 h.p. Speedway. Cruised extensively Atlantic coast and West Indies.

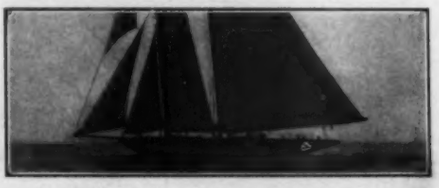
11383.—97x70x20x10.2. Seagoing Cruiser. Three staterooms, bath. 50 h.p. Standard.

12002. — Keel Cruiser. 87x65x18.5x12. Flush-Deck Cruiser, two staterooms. 50 h.p. Murray & Tregurtha.



10324.—84x56x19x8. Lawley Cruiser. Four staterooms, two toilets. Smart sailer.

11981.—83x51x16.8x9. Seagoing Ketch. Launched 1911. Two staterooms. 40 h.p. motor.



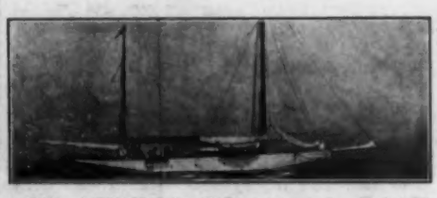
11962.—80x53x17x10. Lawley build, two staterooms, bath.

10141.—80x65x17x3. Two staterooms, bath. 40 h.p. Craig engine. Speed 9 miles. Cruised extensively Atlantic coast and Great Lakes.

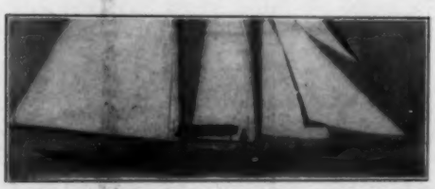
Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

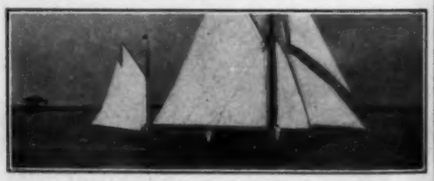
AUXILIARY SCHOONERS, YAWLS AND SLOOPS



11991.—76x52x17x7½. Three staterooms. Bath, 40 h.p. Murray & Tregurtha.

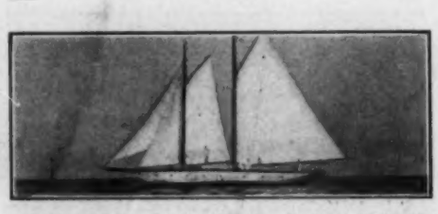


11472.—73¼x46x15x10½. Cruiser. Lawley construction.



11644.—69x52x15.4x8. Ocean Cruiser, three staterooms, bath, acetylene light.

11875. — 67x52x17x6. Seagoing auxiliary cruiser. Launched 1913. Standard motor.

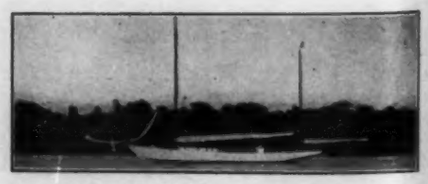


11784. 65x48x15x8.10. Seagoing Cruiser. Built 1914. Large stateroom and main saloon. 24 h.p. 4-cycle motor.

11815.—62x40x11x7. Launched 1913. Stateroom, saloon. Smart sailer.

11992.—64x45½x16x3½. Herreshoff Cruiser. Large cabin.

11189.—60x40x13x8.8. Seagoing Cruiser. Stateroom, large saloon. 18 h.p. Murray & Tregurtha. Crew, 2.



11722.—60x40x15x5½. Two staterooms. 40 h.p. Standard.

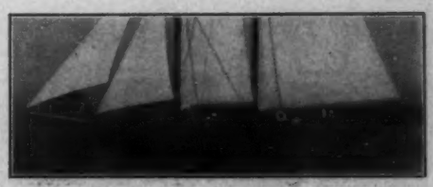
Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

AUXILIARY SCHOONERS, YAWLS AND SLOOPS

11513.—60x40x15x5.8. Double stateroom. Large saloon.

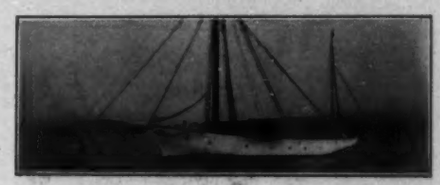
11869.—60x43x15x7. Coast Cruiser. Double stateroom. Large saloon. 24 h.p. engine.



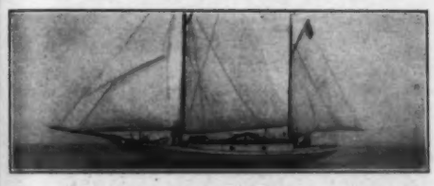
11995.—55½x40x16.2x3.10. Launched 1915. Two staterooms. 25 h.p. Holmes motor.

12011.—56x35x12.11x6½. Lawley build. Stateroom. Saloon. 12 h.p. Standard.

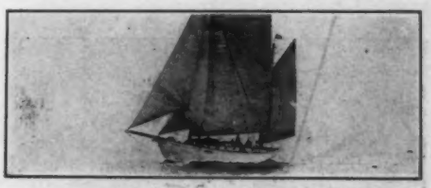
11288.—55x37x16x4½. Stateroom. Saloon. 16 h.p. Globe motor.



11959.—54x31x15.2x7. Seagoing cruiser. Two staterooms. 18 h.p. Standard.



11888.—50x40x13x4. Ketch. Stateroom. Large saloon. 18 h.p. Lamb.



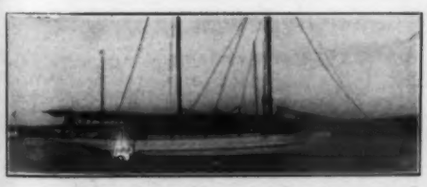
11661.—49x37x14x7½. Seagoing Cruiser. Stateroom. Large saloon. 24 h.p. motor, new 1913. Acetylene lighting.

11854.—45.8x38x10½x6. Cruiser. Stateroom. Saloon.

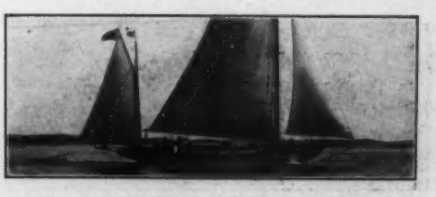
Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

AUXILIARY SCHOONERS, YAWLS AND SLOOPS



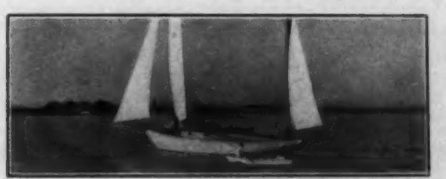
11751.—46x32½x12½x2.10. Cruiser. Stateroom. Bath. 10 h.p. Sterling.



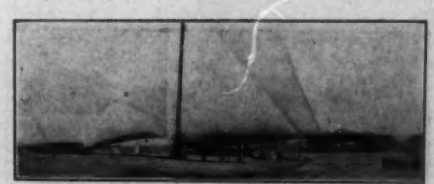
11957.—47½x32x12x5½. Stateroom. Saloon. 12 h.p. motor.

11653.—46½x30x10½x5½. Herreshoff Cruiser. Cabin berths four. 12 h.p. engine.

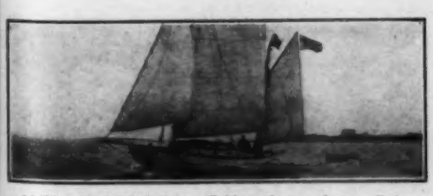
11987.—40x30x12x3.10. Stateroom. Saloon. 25 h.p. Sterling.



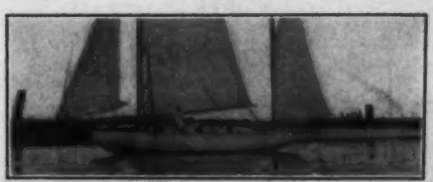
10998.—39½x28x12x6. Coast Cruiser. Four berths in cabin. Headroom, 6.4 feet. Very able sea boat. Easily handled.



11942.—40x28x10½x6 Lawley construction. Lead ballast. Comfortable cabin. 12 h.p. engine, new 1913.



10673.—38x26x9½x5.9. Cabin sleeps four. Palmer motor.



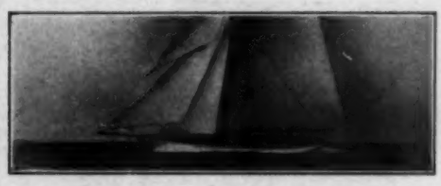
11913.—36x24x11x3. Headroom, 6 feet. Sleeps three. Standard motor.

11731.—36x26x11½x5½. Headroom, 6.1 feet. Cabin berths four. Able single hander.

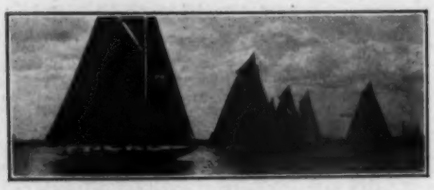
Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

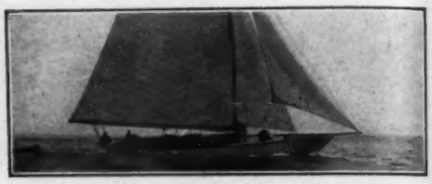
SLOOPS AND KNOCKABOUTS



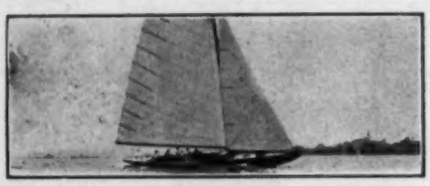
11843.—76x57x15x9½. Cruiser. Herreshoff build. Two staterooms, bath.



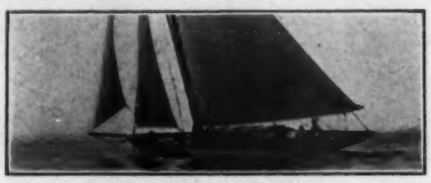
11868.—72x50x14½x9.9. New York Yacht Club 50-Foot One-Design Class. Two staterooms.



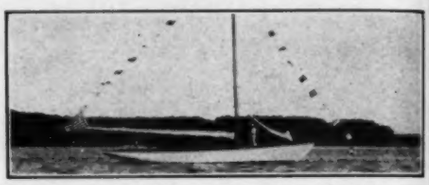
11033.—56x40x12½x8. Herreshoff Cruiser. Very comfortable cabin accommodations. Fast sailer. Easily handled.



11826.—55.8x35x10.8x7.3. Class "P." Launched 1913. Stateroom, large saloon.



11979.—53x35x11.3x7.9. Stateroom, saloon.



11347.—47x34x12x7½. Herreshoff short-ended Cruiser. Sleeps six, two toilets. Cost, $8,000. Fine sea boat.

11989.—49x31x10½x7. Keel Herreshoff Bar Harbor 31-foot class. Lead ballast. Comfortable cabin for four.

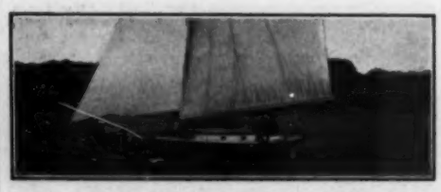
11970.—46½x30x10.8x5.4. Herreshoff Buzzards Bay One-Design Class. Cabin sleeps four.

11999.—43½x30x8.10x6.3. Herreshoff New York Yacht Club 30-foot class. Cabin berths four.

Detailed descriptions of above yachts on file; will be sent by request.

STANLEY M. SEAMAN, 220 BROADWAY, N. Y.

SLOOPS AND KNOCKABOUTS

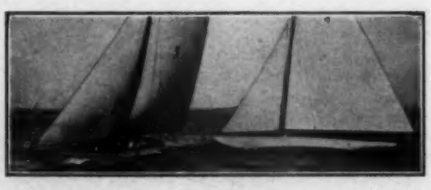


11975.—43x25½x10x6½. Lawley Bar Harbor 25-foot class. Four berths.

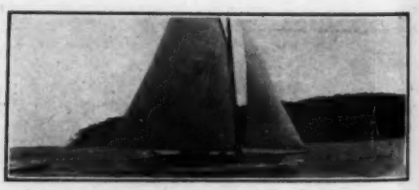
11988.—40x25x10.5x5.10. Cabin berths four.

12009.—37x25x9½x5.10.—Lawley Cruiser. Lead ballast. Four berths.

13202.—39x25x12x6. Heavily constructed. Cabin sleeps two. Toilet.



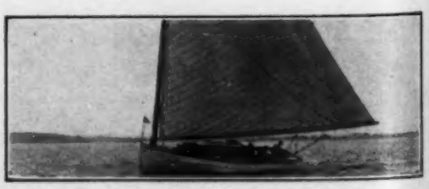
12012.—35.8x22x7.10x5.2. Class "R." Launched 1914. Two berths. Toilet.



11176.—31½x21.9x9.3x4.3. Cabin berths four. Water closet.

11367.—33½x21.4x18x5. Larchmont Inter-Club Class.

11807.—28.10x19.3x6½x4.10. Jewel Class.



11973—26x12x3. Built 1910. Smart-Sailer.

Detailed descriptions of above yachts on file; will be sent by request.

THE MoToR BOATinG MARKET PLACE

Opportunities for the Motor Boatman

The rate for "For Sale" and "Want" advertisements is 3 cents per word. If an illustration is used the charge is as follows, which includes the making of the cut:
Cut one inch deep, one column wide..... $2
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Cut three inches deep, three columns wide..... $15

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

36 ft. Racine Cruiser, perfect condition, fully equipped. $1500. Other used boats, all sizes.

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2 and 4 Cycle

New and used, at prices you will be glad to pay.

This most beautiful of Day Cruisers, 40 ft. new, never launched, $500 below contract price.

New Boats in stock 10 to 40 feet complete or hulls only. Row Boats and Canoes, Power and Rowing Tenders. Estimates furnished for special boats of any size and type.

Boat Accessories at reduced prices
BOAT & AUTO SUPPLY CO., East 49th Street, Bayonne, N. J.

FOR Sale—Yacht Lotus, owned by the late Jno. Trice. Length, 54 ft.; beam, 11 ft.; draft, 30 in. Elegantly finished in mahogany; all improvements; worth $12,000.00. To close estate will sell for $5,000. Write L. A. Bize, Tampa, Fla.

FOR SALE—30 H. P., Roberts 2-cyl., 2-cycle; just overhauled; in perfect condition. Atwater Kent ignition; multiple disc clutch; $150.00. J. F. Christensen, 381 4th Avenue, Troy, N. Y.

BARGAIN—Two new sixteen-foot motor boats suitable for outboard motor. Will close at low price for quick sale to dealer or otherwise. B. J. Henley, Liverpool, N. Y.

WANTED—Live Wire Agents for Harris marine four-cycle gasoline engines in coast, river and lake cities with some knowledge of marine engines, motor boats and motor boat trade. Reliable dealer preferred. State qualifications and if you represent other motor manufacturers. References required. Harris Engine Company, Wilmington, Delaware.

I have taken for debt a few model "D" Schebler carburetors, original packages, ¾", 1", 1¼" at $6.75 each, cash only. Henry Goldrup, Portland Pier, Portland, Maine.

BUICK 17 ENGINE—4 cylinder, 40 H.P., guaranteed. Complete $100. Johnston, West End, Pittsburgh, Pa.

FOR SALE—Heavy Duty 3 Cylinder, 7½ x 9 Automatic, used only a few days, experimenting on a Gas Producer; condition guaranteed. Sell for half original cost. Chief Engineer, 261 Broadway, New York City.

BARGAIN—Detachable Electric Rowboat Motor, brand new, never used. Fits any rowboat or canoe. Six to twelve volts. Quietest, smoothest running portable outboard motor made. Electric motor can be detached and used for any power purpose. List price, $75.00. Sell for $37.50 cash. Box X, MoToR BoatinG.

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If you are getting a new boat or a new engine, and wish to sell the old one, don't have it rotting, or rusting or collecting storage charges—sell it—in the Market Place.

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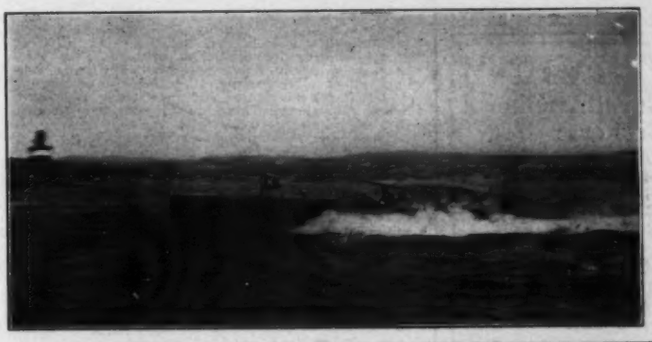

FOR SALE—27 ft. cruiser, brand new, latest style Price $600 for quick sale. James Wilde, Pearl River, N. Y.

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M. C. Kimball of 115 Liberty Street, New York City, offers for sale his beautiful 35' x 6' mahogany, Cinderella type family runabout "Sterling II." This boat is of the famous Crouch design, built and delivered on June 25th, 1915; is powered with a 135 H. P. R-I Sterling engine, 1915 model, with electric starter; speed about 35 miles per hour; will carry comfortably nine persons. This boat will fulfill every requirement for a person wishing to purchase an extremely high class outfit. Reason for selling, owner desires larger boat another year.

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WANTED—Six or eight cylinder racing motor for Hydroplane about one hundred and fifty horse-power. Recent model at sacrifice for cash, full particulars required. Thos. Enright, 260 Brunswick Ave., Toronto.

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307 HIGHMOUNT AVENUE :: NYACK, N. Y.

Searching the Seas for Submarines

(*Continued from page 9*)

steel angles running from the forward to the after bulkheads, 2 feet off center under the houses, and all the deck beams are fast to these, forming a method of construction which ties the entire structure rigidly together.

The decks are braced forward and aft by pipe stanchions, which are made use of as a shoring for the tanks. The displacement of the boats, with full equipment on board, including 720 gallons of gasoline, 32 gallons of lubricating oil, water tanks half full, and the crew of 7 men and a deck load of 2 tons on board, is 14¼ tons.

The power plant consists of three eight-cylinder 5½" x 6" Van Blerck motors, developing approximately 200 h.p. apiece at 1200 revolutions per minute. Each motor drives a 3-bladed Columbian propeller, having a diameter of 25 inches and a pitch of 27 inches. Each motor is fitted with an independent electric self-starter. The center motor is placed just forward of the port and starboard motors. There are four cylindrical gasoline tanks, each of 270 gallons capacity, making a total of 1,080 gallons. The boats are fitted with a 50-gallon lubricating oil tank, a 30-gallon fresh water tank forward, and a 20-gallon tank for fresh water aft. Ventilation to the engine-room is obtained by four 4-inch and two 4-inch hood ventilators on the engine house, 4 ports on the hull, and 6 ports on the engine-room trunk.

A speed of 26 miles an hour is guaranteed for these boats, to be maintained for 5 consecutive hours in a trial on open water. The guaranteed speed has been considerably bettered in the boats so far produced, as they have averaged between 28.4 and 30.54 miles an hour on their trial trips, depending upon the particular boat, and the weather conditions somewhat.

The deck arrangement provides a steering shelter located on the forward deck over the forward end of the engine-room. This steering shelter is constructed of thin sheet steel for the protection of the helmsman from the weather and stray bullets. It contains the usual steering wheel and compass, and directly aft of the helmsman's position is a triple telegraph to the motor room. This telegraph is specially designed for this work, all three telegraphs being contained in one instrument with three independent receivers, one over each motor. In the steering shelter there is a gang switch which controls the deck lights in different groups, making it possible to extinguish the side, head or masthead lights, together with the searchlight, either independently, all together or in groups. A 24-volt system is used and the boat is electrically lighted throughout. There are three separate systems, with separate storage batteries, controlled independently or together from the switchboard in the engine-room.

The interior arrangement provides accommodations for the crew of six men and one officer, although the officers' quarters have been designed to accommodate two if necessary. The crew's quarters are in the forecastle and contain three transom berths in addition to three pipe berths. There is provision for a galley and large amount of locker space. In the officer's quarters aft there are two berths and toilet room, together with a small clothes locker and combined bureau and table. There is also provisions for storing the necessary navigating instruments, charts, etc.

4-Cylinder, 4-Cycle Motors

(*Continued from page 53*)

Rated H.P.	Motor	Bore & Stroke	R.P.M.	Wt.	Valve Location	Ignition
70	Harris	8 x10	400	...	J.	S.
70	Maxi-motor	5 x 5½	1,350	375	H.	J.S.M.
70	Wisconsin Consistent	5¾x 7	900	1,075	T.	J.S.M.
72	Monarch	8 x 9	500	....	..	M.&B.B.
75	Campbell	6½x 6½	800	1,000	L.	J.S.M.
75	Corliss	9 x10½	325	8,000	T.	M. & B.
75	Hall	7½x11	350	6,000	L.	....
75	Robert's Motor	8 x10½	400	4,300	T.	J.S.M.
75	Robert's Motor	5¾x 6	1,200	700	H.	J.S.M.
75	Standard	8 x10	350	5,300	H.&S.	M.&S.
75	Sturtevant	4½x 6	1,500	650	T.	J.S.M.
75	20th Century	8 x10	350	3,700	H.&S.	J.S.
75	Vulcan	8¾x10½	400	5,500	T.	J.S.
80	Atlas	9 x10½	350	8,000	..	..
80	Buffalo	6¾x 9	800	2,100	L.	D.J.S.
80	Murray & Tregurtha	8½x11	350	5,000	H.	J.S.M.
80	Reliance	6½x 8	..	3,000	H.	J.S.
84	Clay	8½x10	375	6,200	H.	J.S.
85	Harris	9 x11	375	....	..	J.S.
85	Van Blerck	5½x 6	1,400	1,025	T.	D.J.S.
90	Clifton	8½x11	400	6,000	L.	J.S.M.
90	Murray & Tregurtha	9 x12	325	6,000	H.	J.S.M.
90	Sterling	5½x 6¾	1,500	850	T.	D.J.S.
100	Anderson	9¼x11	400	5,350	T.	J.S.M.
100	Automatic	10 x14	275	11,780	..	..
100	Buffalo	10 x12	300	8,200	L.	D.J.S.
100	Hall	8 x12	350	8,000	L.	...
110	Atlas	10½x12	300	13,000	..	..
110	Corliss	10½x12	300	14,500	T.	M. & B.
110	Mercury	6½x 7	900	1,050	T.	J.S.M.
110	Murray & Tregurtha	10 x13	325	6,800	H.	J.S.M.
110	Van Blerck	5½x 6	1,700	1,025	T.	D.J.S.
112	Monarch	10 x10	450	....	..	M.&B.B.
120	Automatic	10½x15	250	17,000	..	..
120	Nisco	9 x12½	350	16,500	H.	Diesel
120	Robert's Motor	7 x 7½	1,000	1,000	T.	J.S.M.
125	Atlas	12 x12	300	13,900	..	....
140	Atlas	12 x16	250	19,000	..	..
140	Corliss	12 x14	280	20,250	T.	M.&B.
150	Harris	11 x16	275	....	..	J.S.
160	Atlas	13 x16	250	21,000	..	..
175	Corliss	13½x15½	260	29,800	T.	M. & B.
175	Frisco Standard	11¾x15	270	22,500	H.	M.&B.
200	Atlas	11 x16	225	26,000	..	..
240	Nisco	13 x18	240	45,000	H.	Diesel
	Five Cylinders					
95	Murray & Tregurtha	8½x11	325	5,200	H.	J.S.M.

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It probably means excess friction in the stuffing box.
Boats often gain three miles an hour when equipped with the
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An illustrated leaflet just from the press explains the details fully — how the WATERTITE saves the speed rate up and the grease bill down. WRITE TODAY.
Watertite Bearings Co. 51 Baltimore Ave. Detroit, Mich.

A boat builder's experience with Valspar in his home—

You yachtsmen and boat builders all know what wonderful waterproof and wear-proof qualities Valspar possesses when used on boats. You know that wherever on your boat Valspar is used, whether on the deck, spars, hull or in the cockpit, it will surely give good wear. You know that spray or salt water will never turn Valspar white.

But has it occurred to you that the same qualities which make Valspar ideal on your boat, make it the best varnish for use in your home—on your floors, porch, front door, furniture, or anywhere else inside or outside? You know that Valspar will not turn white in *cold* water; we know that *hot* water also will not harm a Valsparred surface. Valspar is absolutely hot or cold waterproof.

Read this letter from a boat builder about the Valspar that boiling water and scalding steam could not hurt. A varnish that will stand such a test will stand anything.

Essexville, Mich., March 6, 1915

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New York City.

Dear Sirs:

Last summer I built a new residence for myself. The floors and woodwork are all oak, and after having such good success with Valspar on my boats, I thought it would be just the thing for our floors and all the inside finish.

I gave the floors two coats of Valspar. Some little time after we moved in this Fall, when letting the air out of one of the radiators (we have a hot water heating system) I broke the valve off—and the result was that a stream of almost boiling water came out and ran all over the floors and covered them with two inches of very hot water. *This water was so hot and made so much steam in the rooms, that it caused the wall paper to come off in some places.*

This water stood on the floors until we could get it mopped up, so hot you could not touch the cloths, towels, etc., which we used in soaking up the water. I thought sure our floors were ruined, but it never hurt them a particle. I would not have believed that any varnish could stand anything like that without turning white.

I saw this myself, so there is no chance for a dispute.

Yours truly,
(Signed) JOHN R. COTTER.

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For ten cents in stamps to cover mailing and packing we will send you sufficient Valspar to enable you to make your own test and draw your own conclusions.

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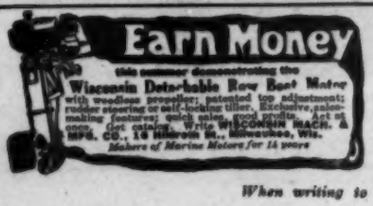
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Makers of Marine Motors for 14 years

Why Employ a Naval Architect?

(*Continued from page 13*)

owe the creation of wonderful motor boats which have gradually developed until practical perfection has been reached. The early launches, most of which were built as stock models, were all arranged alike and looked very much alike. In nearly all of them the motor was located as far aft as possible with a short passageway forward, upon one side of which was the galley and opposite this the toilet room. Forward, depending upon the length of the craft, were one or two cabins, the one most forward being used as a pilot house.

The raised-deck cruisers, the first of which were designed by C. D. Mower in 1904 or thereabouts, seemed to appeal to the motor boating public, and from that time the designing of motor boats has become a specialist's work. Here was a type that allowed of good headroom in every part of the cabin, left room for a cockpit of ample size, and utilized every inch of length and width for accommodations. Here was a type that even in the smaller sizes left little to be desired in seaworthy qualities and which, whether built large or small, so long as it was carefully designed and developed, had all the earmarks of a real boat.

Then came better engines, lighter, more scientific construction, better fittings and furnishings. These made possible the faster and still more commodious bridge-deck cruiser with its power plant almost hidden from sight and sound. Further development includes the combination of the better features of the glass-cabin launch, the raised-deck cruiser and the bridge-deck cruiser in varying quantities until every boat afloat is different from its sister in construction, in appearance, in performance—in fact, in everything. Every job of boat building is a separate job, so-called stock boats not excepted, for in plumbing, the motor, its installation, the interior finish, there is always some divergence which makes every boat built a special creation. That is why a boat costs so much. That is why their overhauling costs so much. The yard men have to make a study of each boat plan and erect proper blocking for each one and treat each one differently; some keels are straight, some rockered, some boats have struts and some have not, all of which planning takes time—and time costs money.

The V- or chine-bottomed cruising boat has come forward with rapid strides during the past two years. Its performance has been startling and the tendency of motor boating folks leans very much toward this type. These boats, or developments of them, in connection with the reliable, light, high-speed motors now manufactured will affect the entire field of naval architecture. They open to the designer a vast field of endeavor. Cruising boats of this type are being built which have guaranteed speeds far in excess of the speeds that ten years ago we believed would hardly be attained by racing craft. The V-bottom boat offers everything in the way of room for comfortable living accommodations, but it is a particular study for the designer to utilize every bit of this room and so to locate the various weights that the speed may not be affected. The prospective owner whose desire is to have an all-round, roomy, fast and seaworthy craft can find no better proposition than a carefully designed, powered and built V-bottom cruiser.

Adherents to the older formed round-bottom boat claim just as great advantages for their type. The faster ones have many of the underwater characteristics of the V-bottom disguised by a rounding bilge. However, of two boats having equal displacement, equal over-all dimensions and equal power, it is my opinion that the V-bottom has the laurel wreath for combined roominess, speed and general all-around comfort.

In the future we shall see real cruising boats of high speed with smaller motors than those in use today. These boats will be modifications of the V-bottom and the inverted V originated by C. Andrade and developed by Albert Hickman. Such a type will possess all the attributes which bring joy into the hearts of water-loving men. They will have all the room wanted, because of the smaller motor and its later-day location across the boat, and because for a given over-all width and length they will contain a greater number of square feet of area. One high-speed motor driving two slower speed submerged propellers, one from each end of the crankshaft through suitable gearing, will require much less fore and aft room for its installation than if installed direct-connected as motors are today, and the time will come when this thwartship installation of the power plant will be common practice. Boats of this type will have a good turn of speed with moderate power, be dry and steady in rough water, have splendid cruising accommodations and because of more superior design of both power plant and hull, be more economical to operate and to maintain.

Exporting a Feature of 1916

(*Continued from page 12*)

prevalent assertion. Yet a letter received by the writer on the very morning when this article was written refers to comments in a Cincinnati daily newspaper to the effect that "South American firms are in the habit of buying on terms extending anywhere from one year to five years." This is simply a generalization without foundation of fact. South American, and in fact, North American buyers of agricultural machinery do sometimes receive a year or even two years' credit. Neither South American nor any other foreign buyers of marine motors have ever received from European or American manufacturers, nor have they ever expected to receive, any similar terms of credit.

If, however, it is true that such credits are unknown in the motor export trade, yet it may be questioned if one of the most effective ways of more rapidly developing our foreign trade in this particular industry may not be the abandonment of the demand which some manufacturers still make for cash before shipment of the goods. Although for the moment the foreign exchanges and international credit relations in general are still to some extent disorganized, yet it will certainly be wise for manufacturers to consider the fashion in which the greater part of the foreign business of every country is transacted—namely, the documentary draft subject to the "acceptance" of customers. To the beginner in export trade this may seem a complicated transaction. Indeed, this method of doing

(*Continued on page 88*)

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"Wisconsin" detachable rowboat motors. $50.00.
Flat bottom cedar dinghies, per ft., $2.00.

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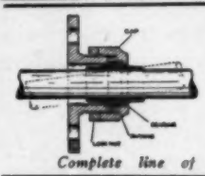

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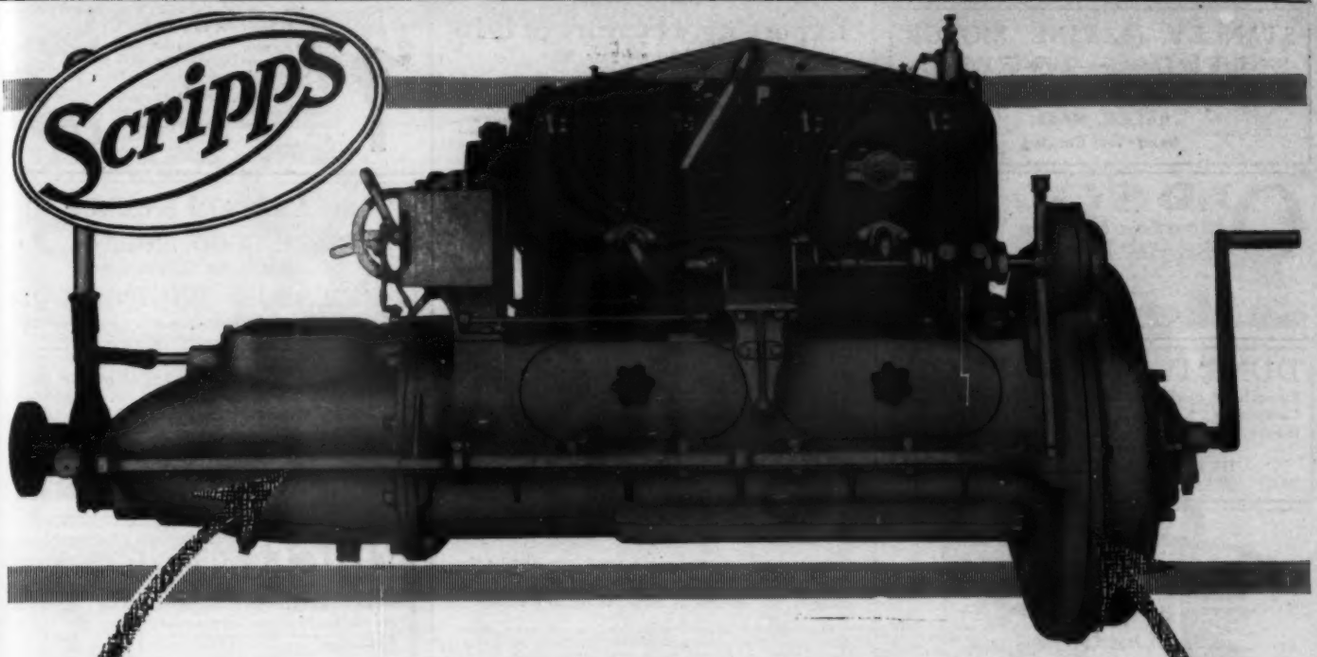
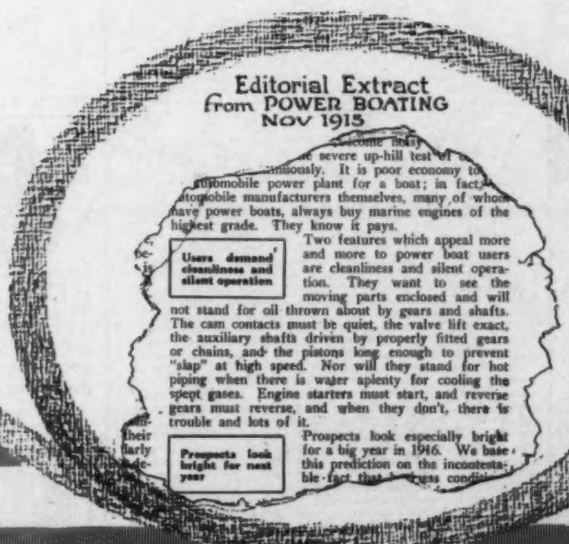


THOSE ACQUAINTED WITH MARINE ENGINE development since the early days of the industry see nothing unusual or mysterious in the continued leadership of the Scripps.

To them it seems the natural culmination of the careful planning, the keen foresight and the intense enthusiasm judiciously tempered with conservatism that has marked every step in the progress of a company of unusual resources and the highest aims

Scripps supremacy was in fact deliberately premeditated. It was planned from the first and striven for with relentless persistency.

That its attainment is an accomplished fact is evidenced by the adoption by manufacturers in general of principles first introduced in the Series B Scripps and its unqualified recognition by authorities as the most valuable contribution to current marine motor progress.



Editorial Extract
from POWER BOATING
Nov 1915

severe up-hill test of
...mously. It is poor economy to
...tomobile power plant for a boat; in fact,
...tomobile manufacturers themselves, many of whom
have power boats, always buy marine engines of the
highest grade. They know it pays.

Users demand cleanliness and silent operation

Two features which appeal more and more to power boat users are cleanliness and silent operation. They want to see the moving parts enclosed and will not stand for oil thrown about by gears and shafts. The cam contacts must be quiet, the valve lift exact, the auxiliary shafts driven by properly fitted gears or chains, and the pistons long enough to prevent "slap" at high speed. Nor will they stand for hot piping when there is water aplenty for cooling the spent gases. Engine starters must start, and reverse gears must reverse, and when they don't, there is trouble and lots of it.

Prospects look bright for next year

Prospects look especially bright for a big year in 1916. We base this prediction on the incontestable fact that ...ness condi...

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High in Quality—Low in Price
THE STANLEY CO.
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3 cylinders—more power—more speed—easy starter—no vibration
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Throws Powerful Light over 200 feet.
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Aluminum base, copper water-jackets, steel shaft, bronze bearings.
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Exporting, a Feature of 1916

(*Continued from page 86*)

business would involve entirely too long a discussion to find a place in the present article. With high-class customers abroad of standing and reputation it offers the opportunity to any manufacturer of extending all the credit that is needed—that is, not to exceed ninety days—while he can at the same time enjoy the use of his money in the regular organization of his business through the facilities afforded by the international banking houses.

The Relation of Buyer and Builder

(*Continued from page 43*)

or devices are such as to be readily understood and easily operated by the large majority of buyers.

Whereas the average buyer has usualy but a limited knowledge of motors, the builder has years of experience back of him, and feels that it is incumbent upon him to do all experimenting at the factory, rather than in the field at the expense of the buyer. Hence, he may sometimes seem slow in the adoption of certain features which to the buyer might seem the obvious thing. This hesitation on the part of the builder, arises from no desire to cheapen the product, but from a sincere wish to make good his guaranty and keep the buyer from ultimate disappointment.

The conservative builder may, and no doubt does, make errors, but it is safe to say that the majority of the reputable builders of marine motors to-day err rather on the side of being slow to make changes than otherwise, and there is positively no doubt that this tendency to conservatism works, in the long run, toward the peace of mind of the buyer. It is beyond question best for the buyer that the builder should make no change and adopt no device except such as the builder himself can both honestly and intelligently recommend to be to the ultimate advantage of the buyer.

With absolute sincerity on his part many a buyer is led astray by a perfectly natural lack of fundamental knowledge of the actual requirements of a marine motor. For example, probably every builder has often been asked why an automobile motor was not all right for a boat. Buyers fail to take into account that, except in the case of racing cars, the average automobile is run at maximum speed probably not to exceed two per cent. of its operating time. Traffic and road conditions forbid it even should the operator desire it. But the average motor boat is undoubtedly run at maximum speed fully ninety-five per cent. of its operating time. And this is especially true of the modern runabouts having a speed of anywhere from 14 to 25 miles per hour. It may be argued that the average motor boat is run very many miles less per season than the average motor car, which is probably true. But the greatest strain and wear come at highest speeds, and the marine motor, although of the general type of the car motor, must of necessity be more rugged if it is to give good service. It is also probably true that a much larger percentage of cars than boats are operated by trained mechanics who avoid undue stress and strain on their motors.

The real object of this article is to impress the buyer with the view that when he wishes to purchase he cannot do better than to go to reputable makers and place himself in their hands, giving them his ideas, and asking for their suggestions. While there is a small class of experienced buyers who are intelligently aware of what they require, the majority will do much better to take counsel of the builder and accept his advice. The builder, should, and frequently does, tell the buyer what *not* to buy as frankly as what *to* buy, even though that may mean less money for the builder himself. Every reputable builder can count among his personal friends men who were unknown to him before they became his clients and who have become his friends because the builder studied their needs and conditions and gave them lasting satisfaction.

The building of marine motors is now a regular and standardized business, and every buyer can be suited, from those who require the extreme heavy-duty motor for the severest commercial work to those who have the racing fever. For the service required by the average buyer the modern high grade "all-around" motor with its perfection of design and its very complete equipment, will perform for its operator the same reliable service that he expects from the power in his motor car. He has no radiator to fill, and with due attention to the fuel supply and lubrication his marine motor will serve him from morning until night. Electric starting and lighting render it unnecessary for him to leave his seat in the boat any more than in the car. The great flexibility of the motor, due to perfect design, and the improvements in carburetion and ignition, make docking and landing simple, while if he wishes to run slowly to enjoy a special bit of scenery or to speak another boat, throttle regulation, as in his car, gives the desired result. In short, the present day marine runabout is practically a water automobile. Its regulation and control are essentially that of the motor car, its exhaust is as quiet, and its power (which is the heart of either car or boat) is just as dependable.

The interests of the buyer and the builder are identical. The builder has spent time, hard cash, and earnest effort to produce something which he can guarantee, and which will make the buyer his friend and not his enemy. He is always ready to listen to the suggestions of the buyer, and to give sound reasons for the addition or the omission of any feature. It is vital that he should please the buyer, and it is obvious that he must please him not only for the outset, but for the future. The buyer is, therefore, far safer in the hands of the conservative builder than with one who promises everything and who is running off after every new feature, whether that feature has stood the test of time or otherwise. The buyer may be certain that the builder is as desirous of adopting everything really good as the buyer is of having it.

All builders should, therefore, meet the buyers frankly and honestly, telling them the advantages and disadvantages of all new features, and impressing them with the fact that the builders have something more in view than simply getting the buyer's money. And all buyers should realize that builders are widely experienced, are constantly on the alert to improve their product, and while neither buyer nor builder is infallible, the spirit of confidence in each other is certain to work out in the long run far more to the advantage of the buyer than the spirit of suspicion and distrust. To give ultimate and lasting satisfaction to the buyer is the aim of every reputable builder. The days of "faking" are past.

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Complete with engine, ready to run, 18, 20, 25, 27-foot boats at proportionate prices. Equipped with famous Detroit 2-cycle Engines. Only 3 moving parts. The safe launch. Non-sinkable. Needs no boat house. Free catalogue. Steel Rowboats, $30.
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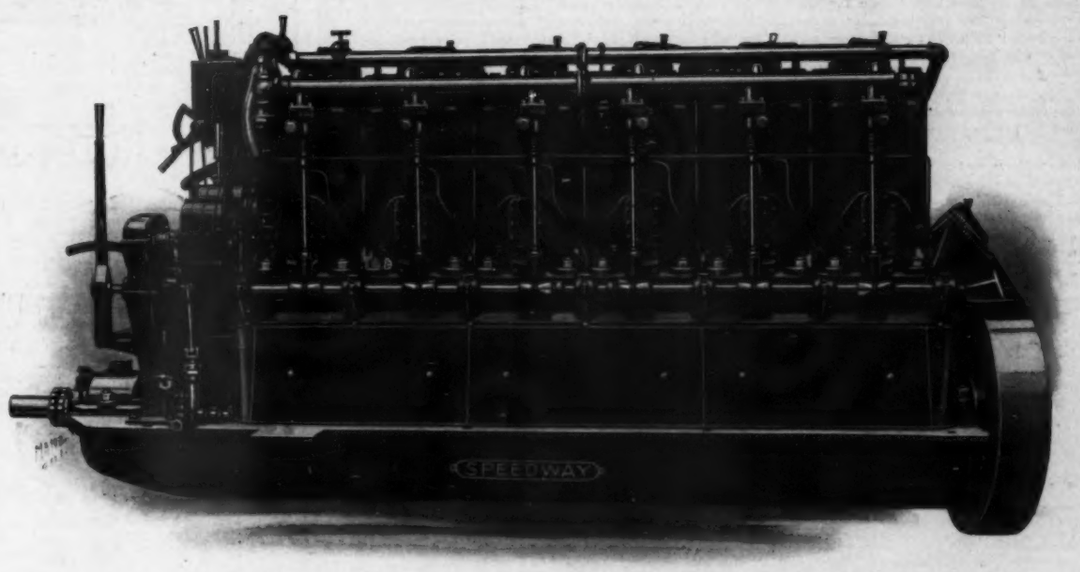
GASOLENE ENGINES



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The Motor That Never Backfires

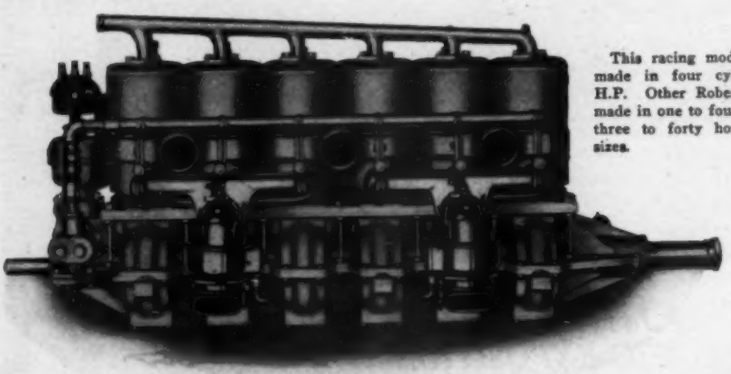
Roberts motors have been known for years as the finest and fastest two-cycle motors made. During the past twelve years they have been used in thousands of racing boats, cruisers and launches, and hundreds of them have been installed in aeroplanes as well. They have earned a reputation for speed, power, reliability and quality which is equalled by no other two-cycle engine.

Roberts engines do not backfire, because they are equipped with the only successful non-backfiring device, which is protected by basic patents. Roberts motors are so simple that we can put exceptional materials and workmanship into them without making the cost prohibitive.

The illustration shows the new six cylinder 100 H.P. Roberts, designed especially for hydroplanes and aeroplanes. No other motor of its weight can equal it for speed, power and endurance. Better workmanship or higher grade materials are not put into any motor. Better service, greater reliability and durability cannot be obtained from any high speed motor.

For smooth running, reliability, and the ability to keep running for hours at a time at top speed, there is no motor that can equal it.

Yet our simple design makes the manufacturing cost very low. You reap the benefit of this low cost in an exceptionally low price. You can own the best and fastest racing boat in your locality at half the initial cost and half the upkeep cost if you buy a Roberts.



This racing model is also made in four cylinder, 65 H.P. Other Roberts motors made in one to four cylinder, three to forty horse power sizes.

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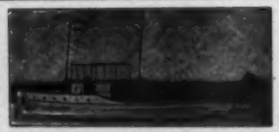

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Motor Boats and Yacht Clubs of America

(*Continued from page 37*)

New Brunswick B. C., New Brunswick, N. J.
New Brunswick Y. C., New Brunswick, N. J.
Newburgh Y. C., Newburgh, N. Y.
New Haven Y. C., New Haven, Conn.
New Illinois Athletic C., Chicago, Ill.
New Jersey Y. C., Bayonne, N. J.
New Meadows B. C., Brunswick, Me.
Newport L. C., Newport, Ky.
Newport Y. C., Newport, R. I.
N. Y. Athletic Club, Pelham Manor, N. Y.
N. Y. Can. C., Bensonhurst, L. I.
N. Y. M. B. C., Ft. W. 147th St., New York City.
New York Y. C., New York City.
New-We-Que-Tong Club, Traverse City, Mich.
Norristown M. B. C., Norristown, Pa.
North Bentley Y. C., Tottenville, S. I.
North End B. C., Newburyport, Mass.
North Hudson Y. C., Woodcliff, N. J.
North Shrewsbury Ice Y. C., Red Bank, N. J.
North Vancouver Y. C., N. Vancouver, B. C.
Northport Y. C., Northport, L. I.
Norwalk Y. C., Norwalk, Conn.
Oak Island Y. C., St. Lawrence Co., N. Y.
Oak Orchard Y. C., Oak Orchard Harbor, Ont.
Oakland Y. C., E. Oakland, Cal.
Ocean City M. B. C., Ocean City, N. J.
Ocean City Y. C., Ocean City, N. J.
Ocean Gate Y. C., Ocean Gate, N. J.
Ocean Y. C., Stapleton, S. I.
Ocomowac Lake Y. C., Gifford, Wis.
Oconomowac Y. C., Oconomowac, Wis.
Ohio River L. C., Cincinnati, O.
Olcott Beach Y. C., Olcott Beach, N. Y.
Old Colony Y. C., Savin Hill, Mass.
Old Harbor Y. C., Dorchester, Mass.
Old Mill Y. C., Brooklyn, N. Y.
Old Mill Y. C., Port Chester, N. Y.
Olympia M. B. C., Olympia, Wash.
Olympia Y. C., Salem, Mass.
Onalaska B. C., Onalaska, Wis.
Oningaming Y. C., Hancock, Mich.
Oregon Y. C., The Oaks, Portland, Ore.
Orient Heights Y. C., East Boston, Mass.
Orienta Y. C., Mamaroneck, N. Y.
Orum Y. C., North Beach, L. I.
Oshkosh P. B. C., Oshkosh, Wis.
Oshkosh Y. C., Oshkosh, Wis.
Oswego Y. C., Oswego, N. Y.
Oswegatchis Y. C., Ogdensburg, N. Y.
Ottawa River Y. C., Toledo, O.
Ottumwa B. C., Ottumwa, Ia.
Pacific M. B. C., Belvedere, Cal.
Pacific Y. C., San Diego, Cal.
Palisade B. C., Yonkers, N. Y.
Palatka Y. C., Palatka, Fla.
Park City Y. C., Bridgeport, Conn.
Pascagoula Y. C., Pascagoula, Miss.
Passaic River Y. C., Harrison, N. J.
Pass Christian Y. C., Pass Christian, Miss.
Patchogue Motor Scooter C., Patchogue, N. Y.
Pathfinder Y. C., Fulton, N. Y.
Pavonia Y. C., Bayonne, N. J.
Pawtucket M. B. C., Pawtucket, R. I.
Peekskill M. T. B., Peekskill, N. Y.
Peninsula Y. C., S. Boston, Mass.
Pennant Y. C., Ft. 150th St., New York City.
Penobscot River & Pushaw Lake M. B. C., Old Town, Me.
Pensacola Y. & M. B. C., Pensacola, Fla.
Peoria Y. C., Peoria, Ill.
Petersburg M. B. C., Petersburg, Va.
Petoskey M. B. C., Petoskey, Mich.
Pewaukee Y. C., Pewaukee Lake, Wis.
Philadelphia Can. C., Wissahickon, Pa.
Philadelphia Y. C., Essington, Pa.
Pilgrim Y. C., Gravesend Beach, N. Y.
Pine Lake Y. C., Nashotah, Wis.
Pistakee Y. C., Chicago, Ill.
Pittsburg Aquatic Club, Pittsburg, Pa.
Pittsburg L. C., Pittsburg, Pa.
Pittsburg M. B. C., Pittsburg, Pa.
Plandome Y. C., Plandome, L. I.
Players' B. C., Inc., Fairhaven, N. J.
Pleasant Bay Y. C., Orleans, Mass.
Pleasant Park Y. C., Winthrop, Mass.
Plymouth Y. C., Plymouth, Mass.
Point Independent Y. C., Brockton, Mass.
Point O'Woods Y. C., Point O'Woods, L. I.
Point Shirley Y. C., Point Shirley, Mass.
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Poquennock Y. C., Bridgeport, Conn.
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Portland Y. C., Portland, Me.
Portsmouth B. C., Portsmouth, Va.
Portsmouth Y. C., Portsmouth, N. H.
Port Washington Y. C., Port Washington, L. I.
Poughkeepsie Y. C., Poughkeepsie, N. Y.
Progressive B. C., Rockaway Beach, L. I.
Providence Cor. Y. C., Providence, R. I.
Put-in-Bay Y. C., Lake Erie.
Quantuck Y. C., 257 W. 86th St., New York City.
Quebec Y. C., Quebec, Can.
Queen City Y. C., Toronto, Can.
Quincy M. B. C., Quincy, Ill.
Quincy P. B. C., Quincy, Ill.
Quincy Y. C., Quincy, Mass.
Rahway Y. C., Rahway, N. J.
Ramble B. C., New London, Conn.
Ramblersville M. B. C., Ramblersville, L. I.
Raritan Y. C., Perth Amboy, N. J.
Raunt M. B. C., Inc., The Raunt, L. I.
Reading M. B. C., Reading, Pa.
Red Bank M. B. C., Red Bank, N. J.
Red Bank Y. C., Red Bank, N. J.

(*Continued on page 114*)

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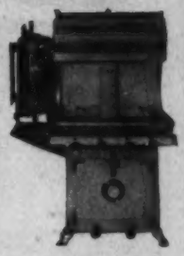

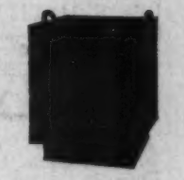

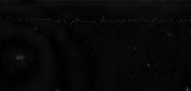

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Capable of running the entire Durkee Factory; increased to three times its present capacity. The main building has been enlarged and is now over 600 feet long, while for storage purposes another new structure over 500 feet long has just been completed.

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To meet the delivery problem, we are running the factory both night and day.

We hope to be entrusted with your favors in 1916, and can assure you that every care will be taken to execute orders so as to give the fullest satisfaction to our clients.

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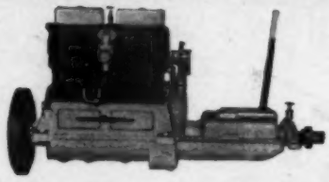

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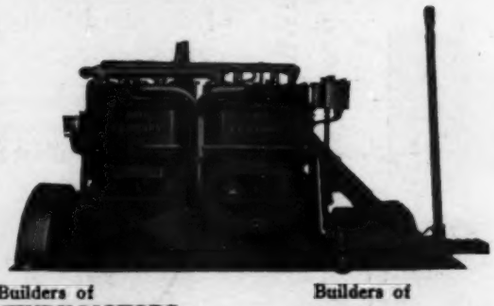

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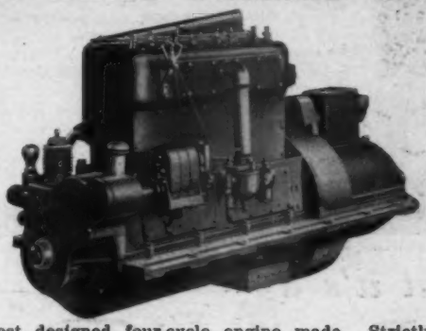

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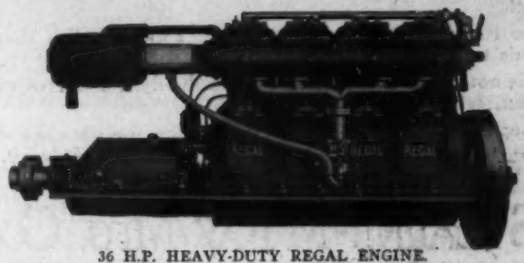

36 H.P. HEAVY-DUTY REGAL ENGINE

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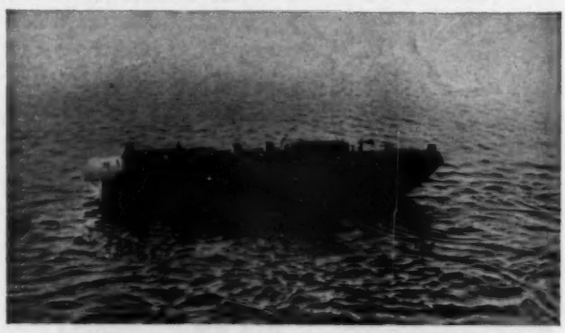

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43 x 12 feet, with draught of 2 feet, 10 inches.

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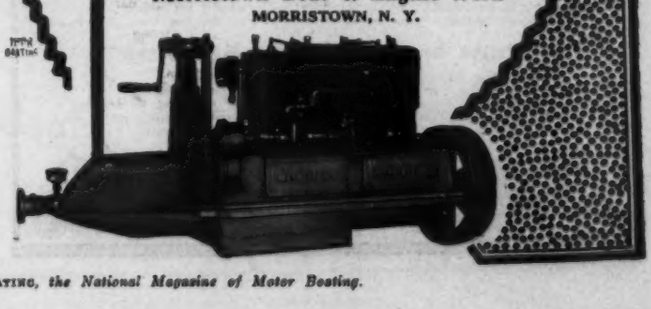

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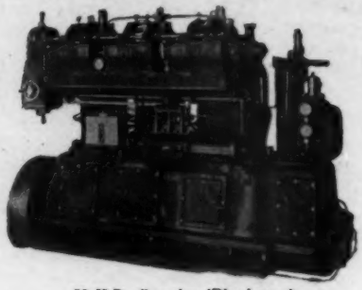

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4 Cylinder 4 Cycle

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MODEL H-4 3¾x5½" NOMINAL RATING, 24 H.P.

IN this motor we have succeeded in retaining the valuable features of our larger models of the well-known Capitol Motors, and have produced a popular-sized engine of medium low price, with extreme simplicity, reliability, quietness and a power curve that is second to none.

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There is a Vim for speed boats,—light, flexible, strong.
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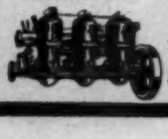
Whichever type of Vim you buy you will have a good reliable motor at a reasonable price.



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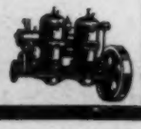

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THE "ARISTOCRAT"

4-cylinder, 4-cycle, 14-H.P.

HERE is our handsome new model. A four-cycle thoroughbred, with electric self-starter, electric lighting storage battery, Bosch high tension magneto ignition, Schebler carburetor, nickel-finished parts and highest possible workmanship,—a mechanical masterpiece.

In designing the Caille Aristocrat, we had but one purpose in view; that was to produce a motor that would give to the user the same pleasure and efficient service from his Boat that he could get from the Motor in his Packard Automobile. A motor that would enable the user to get into his boat, press the starting button and forget everything but the fact that the Boat is travelling through the water. In the Aristocrat, we have accomplished this object.

It is an ARISTOCRAT in the best sense of the word—quiet, refined, well-groomed, perfectly at ease in the best company and equal to any emergency.

Specifications:

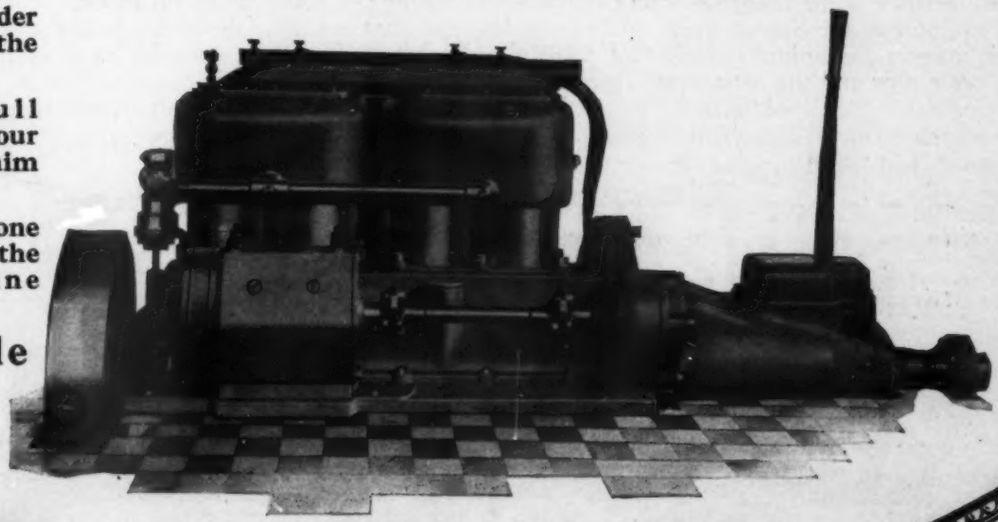
Stroke, 4 inches. Bore, 3½ inches. R.P.M., 900. Propeller, any choice suitable to power.
Weight, complete with self-starter and all equipment, 664 pounds.

Any boat builder will install the Aristocrat.

To get the full pleasure from your boat insist on him doing so.

There is only one Aristocrat in the marine engine field

The Caille



Price, completely equipped, $500

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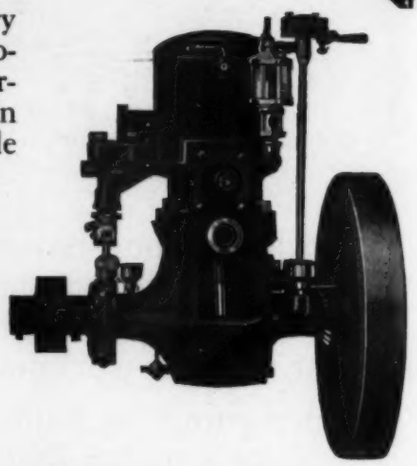
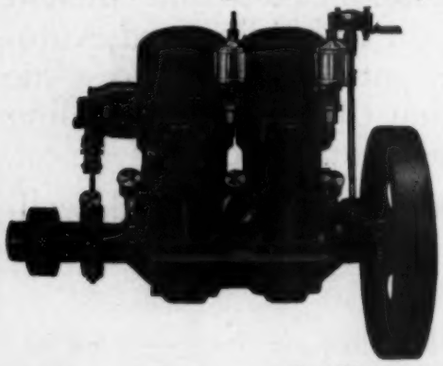
Caille Perfection Motors for Every Purpose

THE Caille line embraces engines for every size of boat and every class of service, from the little 2 H. P. launch and rowboat motors to the big 20 and 30 H. P. engines for cruisers and commercial boats. The great majority of marine motors sold come within this range of size and power, and more of these motors are Caille Perfections than any other one make.



Single Cylinder Models for Open Boats

For launches from 18 to 26 feet and for auxiliary power in sail boats we build four models of single cylinder two cycle motors that are the simplest engines of their size and the lowest priced for their quality. The ratings are 2, 2½, 4 and 6 H.P. respectively. While we always recommend getting a power plant of ample capacity it is surprising how durable, economical and thoroughly satisfactory these small Perfection Engines have proved to be. They can be supplied with the Perfection Waterproof Ignitor which makes ignition absolutely reliable and trouble proof.



An 8 H. P. Heavy Duty Engine

There is a big demand for a real heavy duty engine of this size for commercial boats and various kinds of hard work. Our 8 H.P. Heavy Duty will do more work and stand more punishment than any motor of its size ever made. For the last three years it has been building up a reputation that is a credit to the marine industry.

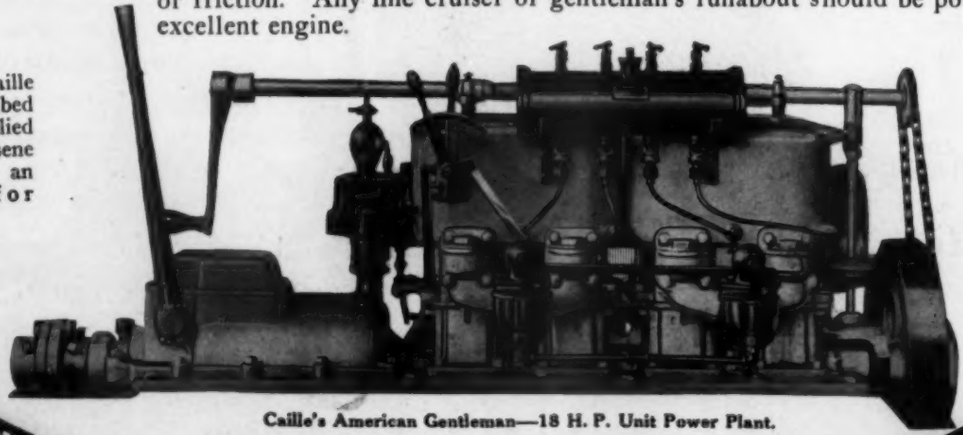
Three Two Cylinder Perfections—and a Four

The Perfection Two Cylinder Engines of 7-8 H.P., 14 H.P. and 18-20 H.P., are suitable for launches and work boats from 26 to 40 feet. The four we mention above is a 30 H.P. engine that will make good in any cruiser requiring about this power.

Caille's American Gentleman—18 H. P.

This, we believe, is the finest two cycle engine outfit on the market. An 18 H. P. Unit Power Plant that has the best of equipment, the best of finish and everything else that could be desired. It has a rear starter, Bosch high tension magneto, aluminum crank case, multiple oiler, etc. It runs as smoothly as an eight cylinder engine of the four cycle type and the reverse which is built in as a unit with the motor transmits the power without noise or friction. Any fine cruiser or gentleman's runabout should be powered with this excellent engine.

Any of the Caille models described above can be supplied with Caille Kerosene feeder which is an added factor for economy in fuel.



Caille's American Gentleman—18 H. P. Unit Power Plant.

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Our Leader for Three Years

Still as Popular As Ever with Owners and Buyers

Caille 8 H.P. Unit Power Plant

A Unit Outfit that is Now Installed in Thousands of Boats

WHILE building a complete line of marine motors from 2 to 30 H. P., this 8 H. P. Unit Power Plant was the originator of our policy of specializing particularly on a few "De Luxe" outfits that are in the greatest demand. This motor is now so well known that we do not have to advertise it, but mention it just to show that it is as popular and successful as ever.

This motor is as smooth, flexible and silent in operation as any four-cylinder, four-cycle model of greater power. It gives maximum power in minimum space, with minimum weight and fuel consumption. In fast launches, runabouts and speed boats, up to 26 feet, this engine will give more speed, pleasure and satisfaction than any cheaper motor or less complete outfit.

Building the reverse gear right in as a part of the engine, not attaching it afterwards, the gears can never bind or get out of the line and the weight of the reverse adds to the smooth-running qualities of the motor. If you choose this power plant for your boat you will never regret it.

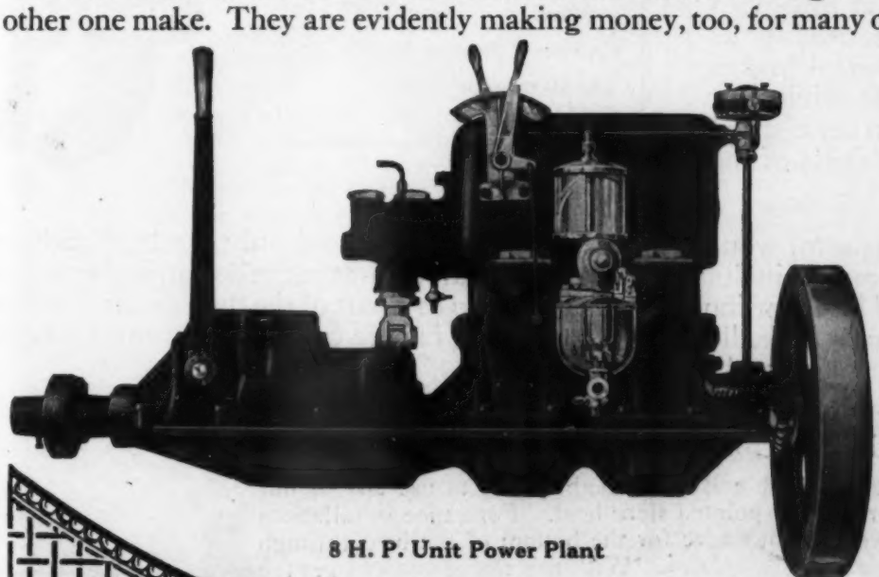
You Need a Caille Catalog

The Caille line is so large and there are so many distinctive features of our various models that we can only touch upon them in a general way in an advertisement of this size. Only a copy of our complete catalog or a special booklet referring to the engine that interests you can give you a fair idea of the construction and service value of any Caille model.

Write us fully about your boat or about the plans of your new boat. Our Service Department will be glad to study your requirements and make some valuable recommendations without any cost to you. Write us today.

The Best Dealer's Proposition

The world over we believe there are more dealers selling Caille Perfection Engines than any other one make. They are evidently making money, too, for many of them have stuck to the Caille for years. This is the best selling, best advertised, most popular line of marine engines made. Any dealer who wants to build up a substantial and permanent business can find the right foundation for it in the Caille line. If you want to handle an engine that sells, let us send you our special dealer's proposition.



8 H. P. Unit Power Plant

Write or wire for it to-day

THE CAILLE PERFECTION MOTOR CO
100 Baltimore Ave., West. Detroit.

CAILLE DETROIT CAILLE DETROIT

THE LEADER OF ALL OUTBOARD MOTORS

THERE is no question but that the Caille 5-Speed Portable is the most desirable outboard motor ever designed. Thousands were sold last year, proving that the exclusive fetaures of this particular model are appreciated and demanded by buyers. It is the greatest advance in rowboat motors since the outboard motor was first introduced.

Safety and Convenience

The five-speed idea, which gives you two speeds forward or reverse, as well as a neutral, is controlled by simply pushing a button and raising or lowering the steering handle. Any inexperienced person can control the boat anywhere without danger of collision, running almost up to a landing at full speed and stopping or reversing as readily as though there was a pair of powerful brakes somewhere on the boat. Imagine driving an automobile without brakes or a reverse speed and you will get an idea of the value of the 5-speed feature.

Five Speeds — two forward, two reverse and neutral
Improved Cooling
Self-lubricating
Weedless Propeller
Water-tight Gears
Press a button to change speed; press another to stop the motor.
Efficient Silencer
Waterproof Magneto in the Fly Wheel
Cushioned Steering Handle
1 to 10 miles per hour
Dual Ignition

Realizing that this wonderful control would appeal to those who wanted only the best outboard motor to be had, we have taken care to include ma ny exceptional features in the design and construction of this model. An enclosed high-tension magneto is built in as a part of the flywheel and is absolutely waterproof. The propeller is a weedless type, the steering handle cushioned against vibration and special attention given to cooling and lubrication.

This motor can also be had with battery and coil or with dual ignition. Except where cost is the ruling factor, the Caille 5 Speed will be found by far the best buy for the small difference in price.

Caille's Quick Detachable Bracket enables you to use any of our outboard motors on any pointed stern boat. For canoe installations we furnish a water tight sleeve for the bottom of the boat through which the motor shaft is inserted. With this sleeve you can get the weight low in the boat and make the canoe as steady and safe as a rowboat and as fast as a speed boat.

THE CAILLE PERFECTION MOTOR CO
100 Baltimore Ave., West. Detroit.

APELCO

THE PIONEERS OF
MOTOR BOAT
ELECTRIC LIGHTING SYSTEMS

Apelco Starting Units

Suitable for certain motors, can be supplied. In writing for information, send with your letter, bore and stroke, h. p., r. p. m. and number of cylinders of motor for which starting unit is intended.

APELCO LIGHTING Systems are furnished in three different sizes.

The Apple Electric Co.

FACTORY: NEWARK, N. J., U. S. A.

CURTISS always leads, as again demonstrated by the new closet put on the market by us this fall.

This is not a large fixture, but has been kept within dimensions suitable for small and medium sized boats.

The new fixture will possess all the practical advantages of our best types, having large flush; discharging contents quickly, and working easily and noiselessly.

The fixture is of our usual high grade, nothing but brass and porcelain being used in its construction, and it has also the advantage that any one is able to install the complete fixture ready for use without the aid of a regular plumber, if desired.

This is possible only by the special couplings which enable you to slip the lead pipe through the connecting tail pipe or coupling, turn the end of pipe over, screw up the coupling nut and you are all through.

This is the reason for the term Lead Pipe Cinch.

Two years ago, recognizing the demand for a low priced closet for use on small and medium sized vessels we put on the market our Fig. 1395 Closet. This was very popular, and the number of these fixtures supplied the trade convinced us that the low priced fixture was the best seller, so along those lines we have developed the Fig. 1393 Closet, which is a very great improvement on the Fig. 1395, and the advance in price is nominal.

These closets are guaranteed for three years; we do this to assure you of the merit of this fixture which only needs a trial to convince any one.

Manufactured Solely by

The J. H. CURTISS CO.

2 South Street, New York

More Speed Guaranteed

If you want more speed and efficiency out of your boat without going to the expense of a new engine or other elaborate equipment why not put your problem up to us? For years we have had a standing guarantee to increase the speed of any boat 1 to 3 Miles per Hour with a new

BRYANT AND BERRY PROPELLER

The B & B Propeller must be unusually efficient for we have been making this money-back guarantee for the past seven years and have never had occasion to regret it. You can try one of our wheels without any chance of dissatisfaction or loss; we take all the risk.

Bryant & Berry Propellers are made of a special bronze, as strong as steel, and are accurate in workmanship, pitch and balance to the highest possible degree. The name "Bryant and Berry" is stamped on the hub of every genuine B & B wheel.

Write us today about the size of your boat, engine, details of construction and kind of service. We will tell you without obligation which B & B wheel to use and how much it would cost you

BRYANT & BERRY COMPANY

28 WEST ATWATER STREET DETROIT, MICH.

Washington and Alaska Distributor: S. V. B. Miller, Seattle, Wash.
Canadian Fairbanks-Morse Co., Canadian Sales Agents.
Woodward Wight & Co., Southern Representatives.
E. J. WILLIS CO., New York Agents.

Economy and Satisfaction

A marine engine that doesn't give complete satisfaction is a poor investment at any price, no matter how little it costs in the first place, or how much engine (by weight) you seem to get for your money. It is far better to pay a little more and get a really high grade

CAMPBELL
Four Cycle
MARINE MOTOR

Campbell Motors are not offered in price competition with cheap motors, but they always prove in the long run to be the cheapest motors possible to install, cost of running, repairs, etc., considered. They are light in weight, simple in construction, noiseless in operation, strong and durable, and will start easily and run continuously under any weather conditions. In fuel consumption they are the most economical motors on the market.

Almost any engine will give you power enough if it has sufficient bore and stroke; almost any engine can be built strong enough if there is no limit to the weight. The Campbell reputation, however, has been built upon its high efficiency in relation to weight, having unusual power, strength and durability for an engine of its size.

One, two, three, four and six cylinder motors for pleasure and work boats, from 5 to 60 H.P. distinctive open base construction. We also build Campbell High Speed Motors in 30-40 H.P., 75-100 H.P., and 100-125 H.P. sizes. Rowboat Motors, Lighting and Pumping Plants.

"Buy a Campbell and Keep Going"

Write today for Catalog giving complete information and letters from users

Campbell Motor Manufacturing Co.

102 South Third St., Minneapolis, Minn.

Special 3 Qualities

Deluxe: Genuine Spanish Cedar and Mahogany, Aluminum Fittings, etc.

Regular: Quartered Oak and Cypress (natural) Nickel Fittings, etc.

Plain: Plain Oak and Cypress, (painted) Galvanized Fittings, etc.

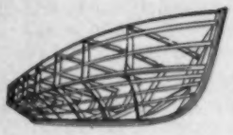
22 miles per hour - 22 ft. Runabout

Mr. C. W. Bower's boat, Peoria Ill.

12 h.p. - 22 miles per hour

Hydroplanes

We build Cruisers, House boats, Work boats, Fast Passenger boats, Fishing boats, Shoal boats. Planked Hulls and Boat Frames.



K-D Boat Frames

Row Boats

Motor Boat & Auto Supply Mfg. Co.

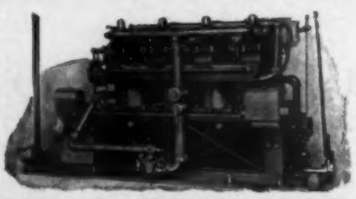
311 Main Street Cincinnati, Ohio

WOLVERINE THE MOTOR WITH THE BORE and STROKE for MARINE SERVICE

FUELS { KEROSENE (PARAFFIN) / GASOLINE (PETROL) / DISTILLATE / SUCTION PRODUCER GAS

Write for Catalogue No. 53

WOLVERINE MOTOR WORKS Bridgeport, Conn., U.S.A.



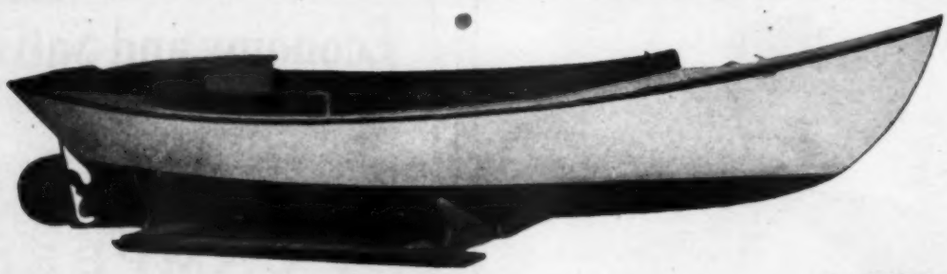
30-40 H. P. Special Engine built for U. S. Govt.

Gasoline Yachts and Engines

NOTED FOR RELIABILITY
TREGURTHA WATER TUBE BOILERS
STEAM LAUNCHES AND ENGINES
ELECTRIC LIGHT OUTFITS

MURRAY & TREGURTHA CO.

340 WEST FIRST STREET SOUTH BOSTON, MASS.



20-Foot Special Dory Launch—Our Best Leader
The Safest Little Family Boat Built—Will Stand the Ocean Waters

CAPE COD POWER DORY CO.

455 Main Street, Wareham, Mass.

Other Stock Models:
35' CRUISER
28' CRUISER
24' CRUISER
17' CLUB SAIL DORY
16' SHALLOW DRAFT
17' LAUNCH LAKE BOAT
14' FOR OUTBOARD MOTOR
10' & 12' ROWING SKIFFS

THE MATTHEWS CRUISER IS BUILT WITH BUT ONE GOAL IN VIEW—

PERFECTION

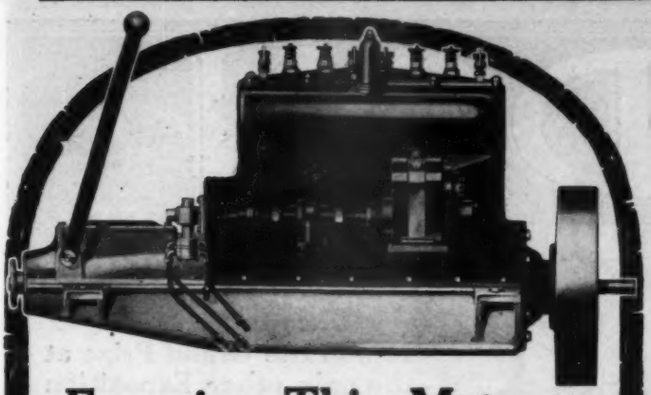
66 Ft. High Speed Cruiser CELERITY.

Read this:—"Yours of the eighth inst. received. In regard to selling the CELERITY, I will say that if I should fix a price, it would be prohibitive. I have traveled around a lot since writing you and have seen a great number of boats, especially around New York, and I am darned if I have seen as graceful a boat as CELERITY. I am very proud of her. The only change I could make would be to put in more powerful engines and my good sense tells me I would be foolish to do that. I leave here for Florida about the 20th of this month.

Yours truly,
C. S. CUMMINGS."

Why experiment! Cruiser literature upon request.

The Matthews Boat Company
Port Clinton, Ohio



Examine This Motor

Light and compact, yet with surplus power and endurance; running smoothly and with almost no vibration; getting full power out of every gallon of gasoline, this Type QM Wisconsin Motor, at $375 f.o.b. Milwaukee, will give you all the power and speed for which you call upon it.

Wisconsin Motors

are "sweet running" because they are correctly designed, with all reciprocating parts accurately balanced, and because of the materials and workmanship that go into them.

Write for specifications of different types.

Wisconsin Motor Mfg. Co.

Station A, Dept. 302 Milwaukee, Wis.

New York Branch:
50 CHURCH ST. - - T. M. FENNER, REPRESENTATIVE

25 FOOT CABIN CRUISER

THE arrangement of this raised deck cruiser is very comfortable and convenient, it is able and seaworthy in heavy weather and it has an actual speed of 9½ to 10 miles per hour. There is a roomy cockpit aft, a comfortable cabin with 6-foot transoms, ice-chest, dish lockers, clothes lockers, drawers, and a separate toilet room forward. The construction is strong, the workmanship and finish of the highest class. The utmost care is taken with the engine installation. Perfect ventilation and freedom from noise, dirt and vibration are noteworthy features. The engine is completely out of the way, but instantly accessible either from the cabin or the cockpit.

STEARNS & McKAY CO.
MARBLEHEAD MASS
U.S.A.

FLOWS FREELY AT ZERO

THIS is most **important** during winter months. You should know whether the oil you are using **"flows freely at Zero."** All oils do not possess this feature — notably the paraffine-base oils, which thicken up under cold, and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "flows freely at Zero," and leaves no carbon, owing to the fact that it is a Southern Asphalt-base Oil containing no paraffine to gum, stick and thicken.

Gulf Refining Company
Pittsburgh, Pa.

District Sales Offices: New York, Philadelphia, Boston, Atlanta, Tampa, New Orleans, Houston.

Real Economy For Every Engine

A Detroit Mechanical Force Feed Oiler means real economy because it is adjusted by the operator to feed exactly the amount of oil required—no more—no less.

This means a minimum of oil used for perfect results; but the *real economy*—the *big saving* is evidenced in the freedom from repair bills—the greater service and longer life of the machine.

Detroit Mechanical Force Feed Oilers

are the best possible insurance against burned out bearings, scored pistons and cylinders, annoying delays and shutdowns due to faulty lubrication.

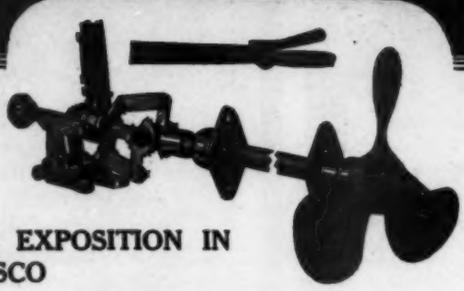
They are made in styles and sizes for every kind of gas—gasoline or oil engine, marine stationary or automobile. Equipped with pulley ratchet, gear or sprocket drive for easy installation on *any engine.*

Catalog P-64 giving full information gladly sent on request.

DETROIT LUBRICATOR COMPANY
DETROIT, U. S. A.

Makers of the Stewart Carburetor

GORDON
REVERSIBLE PROPELLER



THE GORDON
HAS BEEN AWARDED
The Gold Medal
AT THE PANAMA-PACIFIC EXPOSITION IN SAN FRANCISCO

It won the Grand Prize at the only other Exposition at which it was shown, The Alaska-Yukon-Pacific, at Seattle, in 1909

WHY?

Because the basic principle has always been the best. The many up-to-date improvements make it better to-day than ever before.

Strong, Durable, and with Perfect Control, it is

THE WHEEL for Launches, Cruisers, Tugs, Work-boats, Fishermen and Auxiliaries—*the blades feather*

We should like to talk over your equipment problems with you and quote prices

FOREIGN AGENTS WANTED

THE GORDON PROPELLER CO., -:- 9006 DESMOND AVENUE CLEVELAND, O., U. S. A.

VIPER
Trade Mark Reg.
U. S. Pat. Off.

VIPER SEA SLED

HICKMAN PATENTS

SEA SLED
Trade Mark Reg.
U. S. Pat. Off.

24-foot Standard Sea Sled running at 35 miles per hour

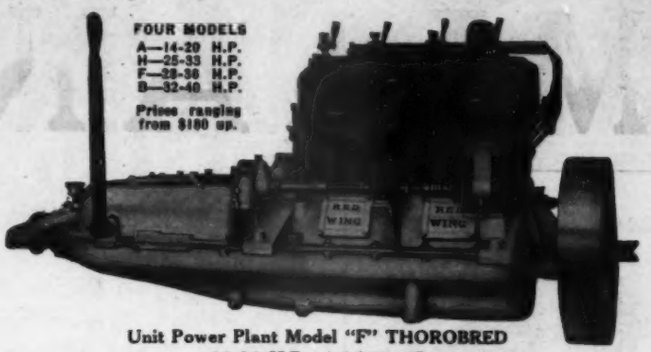
To-day no man is informed concerning motor driven boats capable of any speed unless he has learned what we have to say.

Bulletin No. 18, by Mr. Hickman, just published, gives information that is not available elsewhere.

Would it surprise you to learn that not only has the Sea Sled every other advantage over the older type of boat, but that it is already more efficient?

Murray & Tregurtha Co.
340 West First St., South Boston, Mass.

Viper Co., Ltd.
Pictou, Nova Scotia, Canada



Unit Power Plant Model "F" THOROBRED
28-36 H.P., 4 1/16 x 5"
Furnished with or without Unit Power Plant

Red Wing Thorobred
THE MOTOR WITH POWER TO SPARE

Investigate the New 14-20 h.p.
$180

THE NEW MODEL A "THOROBRED" is going to be the greatest seller on the marine engine market for 1916.

It has plenty of power for the average high class runabout and cruiser, can be operated at slight cost, is small and compact, perfect in design, materials and workmanship, and is sold at a price below the selling cost of any similar motor ever placed upon the market.

There's just one way possible for us to turn out such a motor at such a low price. We have installed special machinery for its manufacture. We will build hundreds of them. Quantity manufacture is economical manufacture. The buyer reaps the benefit.

BOAT BUILDERS AND DEALERS will do well to investigate this new Thorobred. It is going to be the 1916 winner, and you will find your customers calling for it. We furnish it with reverse gear on cast extended base, forming unit power plant when desired.

The 1916 Red Wing Catalog contains a valuable fund of information containing all of our models, and the service given throughout the world by Red Wing Thorobred motors. Let us send you a copy today.

RED WING MOTOR CO. Dept. B. RED WING, MINN., U. S. A.

DEFOE BOATS—SAVE 2/3 THE COST

We build both finished and Knock-down boats of all types and sizes, from the paddling canoe to the 65 ft. power yacht or heavy commercial boat. Some of the finest boats afloat are built with our Knock-down frames. They are finished at your home where you see every piece of timber that enters the construction and help plan the details as the work progresses. People of wealth buy the Knock-down boat, hire the work completed in their home town and save one-half the cost. People of limited means buy them, do the finishing work themselves and save two-thirds of the cost.

DO NOT FAIL TO GET OUR CATALOG BEFORE YOU INVEST IN A BOAT OF ANY KIND, EITHER FINISHED OR KNOCKED DOWN.

All we ask is an opportunity to place our proposition fairly before you. We are satisfied then that your order will come to us.

Six Days After Frame Arrived

Planking and caulking done by one man in 17 days.

"Mt. Rose," built from our K. D. frame, one of the finest boats of the season.

DEFOE BOAT and MOTOR WORKS, 4236 State Street, BAY CITY, MICHIGAN

COLUMBIAN

SPEED PROPELLERS
USED ON
DISTURBER IV.
First Mile a Minute Boat
62 Miles Per Hour
TECH, JR., II.
54.54 Miles Per Hour
FLYAWAY III.
Champion Racing Cruiser
LADY BALTIMORE
Panama-Pacific Racer

COMMERCIAL PROPELLERS

All sizes from 16 inch diameter to 6 feet. Any ordinary pitch.
Eight different styles.
2,000 different patterns.
Balance and workmanship guaranteed.
Large propellers made to order up to 1,500 lbs. weight.

MANGANESE BRONZE GUARANTEED

Will replace without charge if broken in use.

Write for Treatise "Propellers in a Nutshell"

COLUMBIAN BRASS FOUNDRY

218 NORTH MAIN STREET - - - FREEPORT, NEW YORK

New York Branch for Local City Sales Only—Concourse, 50 Church St., New York City.

Are You Satisfied?

Now that the season is almost over, stop a minute and consider whether your engine has run as smoothly this year as you would like to have it. Are you satisfied? Do you get as much power and speed, and as good economy as you used to get? Can you afford to get along with 50% or 75% efficiency, when for a few dollars more you can get 100% efficiency, at least in so far as carburetion is concerned? Perhaps all you need is a

KINGSTON "ENCLOSED TYPE" CARBURETOR

A new Kingston Carburetor puts a degree of snap and vim into your engine that you can secure in no other way. Simply the feeling that the engine is doing better is worth all it costs, to say nothing of the improvement in fuel economy and many other advantages. It is made for all sizes and types of engines.

This carburetor is absolutely up-to-date—designed for the poor grade of gasoline we all have to use these days. Remember, the gasoline used three to five years ago was so much more volatile and easy to vaporize that a carburetor designed for that fuel is utterly inadequate today.
Let us prove what a Kingston will do for you at our risk. If it satisfies you, you will want it. If it doesn't, you lose nothing. Put it up to us.

Write today for price, trial offer and guarantee.

BYRNE-KINGSTON & CO.

KOKOMO, INDIANA

New York Office, 1733 Broadway
Chicago Office, 1439 Michigan Ave.
Boston Office, 111 Haverhill St.
Detroit Office, 870 Woodward Ave.
Los Angeles, 332 West Pico St.

Why the TRINITY BELL is to be the Ultimate Type of Warning Signal

THE TRINITY BELL commands attention as no other Signal can. The greatest and most pleasing warning Signal at day or night for any car on the Road. Warns both Ear and Eye.

Made in three sizes and models:

No. 1—Model A	Size 3½ x 4½	$4.50		No. 2—Model A	Size 3½ x 4½	$4.00
" B	" 5 x5	6.50		" B	" 5 x5	6.00
" C	" 6 x6	8.50		" C	" 6 x6	7.00

No. 3—Model A	Size 3½ x 4½	$3.00
" B	" 5 x5	5.00
" C	" 6 x6	6.00

The TRINITY BELL answers all requirements of Law, and is absolutely guaranteed.

Dealers and Owners:

We absolutely guarantee that the TRINITY BELL is not an infringement on any other Device. **Patent applied for Nov. 5, 1914.**

Dealers and Jobbers:

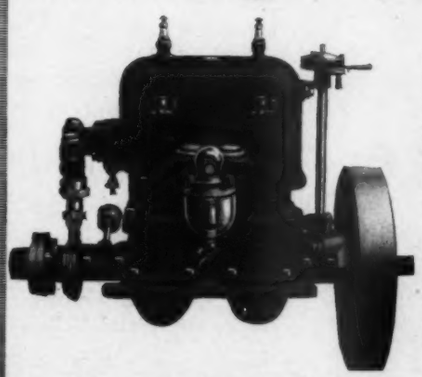
The TRINITY BELL is a big Seller at a good profit.

Write for Particulars.

THE TRINITY BELL ELECTRIC MFG. CO.

5108 Calumet Avenue, Chicago, Ill.

Motorgo Two-Cycle Boat Engines



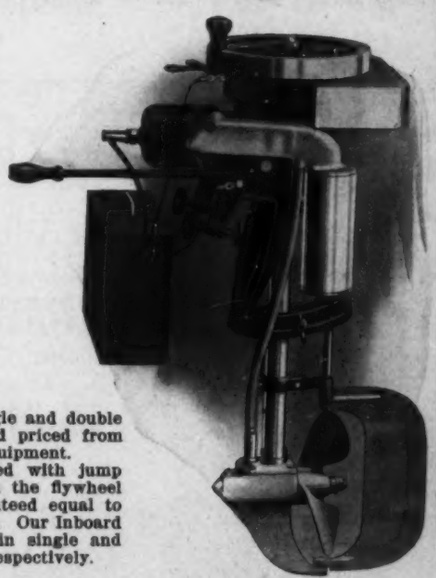
6 Horse Power Two-Cycle Double Cylinder Engine

$79.95 with Schebler Carbureter and full Fresh Water Equipped.

Motorgo Engines have been in use for over ten years and have demonstrated their superiority over other engines costing even double their price. The best material is used in their construction; the workmanship is high-grade in every respect. All parts are accurately machined and are absolutely interchangeable.

The service you get from a boat engine depends on the design of the engine, the material used in its construction and the way it is made. You will be more than satisfied with the service you get from any Motorgo Engine you buy for we have put into them only the highest quality of design, material and workmanship.

These engines are built in several single and double cylinder models from 2½ to 8 H.P., and priced from $36.95 to $94.75 including full engine equipment. Motorgo Rowboat Engines are supplied with jump spark ignition or with magneto built in the flywheel as a part of the engine, and are guaranteed equal to any similar rowboat engine on the market. Our Inboard Canoe or Row Boat Engines are built in single and double cylinder models of 2 and 4 H.P. respectively.



Motorgo Row Boat Engine

$38.50 Complete with Battery Equipment.

Four-Cycle Engines

Don't fail to look for the announcement of our New Four Cycle 16-20 H.P. Engine in the next issue of Motor Boating.

Write today for our catalog 90M67 of Motorgo Engines, Reverse Gears and Equipment.

SEARS, ROEBUCK & CO.

CHICAGO, ILLINOIS

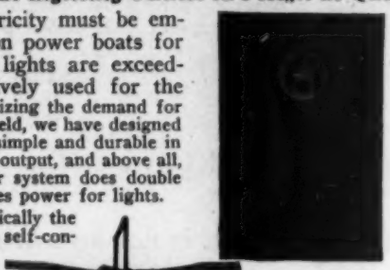
HENRICKS ELECTRIC LIGHTING

for Motor Boats

Henricks Eureka Motor Boat Lighting Outfits Are High in Quality, Simple in Construction and Low in Price

¶ It is now essential that electricity must be employed in some form or other on power boats for ignition and lighting. Electric lights are exceedingly popular and very extensively used for the illumination of all water craft. Realizing the demand for efficient lighting outfits for this vast field, we have designed and placed on the market apparatus simple and durable in construction, having a large electrical output, and above all, exceedingly reasonable in price. Our system does double duty. It fires the engine and furnishes power for lights.

¶ The first cost of the outfit is practically the only cost, as after it is installed it is self-contained. We build lighting equipments for all sizes up to 60-foot boats, for lights direct or generator and storage battery outfits. We are the manufacturers of the well-known Comet Magneto, and there are thousands of them used for ignition and lights on power boats. Sixteen years' experience in magneto building has enabled us to produce the Eureka lighting outfit.



Magnetos for Ignition and Lights Direct, from $10.00 up.
Lighting Outfits, consisting of Generator and Storage Battery, $30.00 and up.
Switchboards, $12.00 and up.
Write for special catalog and prices.

Henrick's Eureka 5 Light Outfit

For Power Boat 40 C. P. Outfit No. 2

¶ Recommended for lighting and ignition on the average boat up to 35 feet in length. We suggest one 6 volt, 12 C. P. searchlight, four 6 volt, 8 C. P. other lights. The battery alone furnished with this outfit will carry the above lamp load for eight hours.

HENRICK'S MAGNETO & ELECTRIC CO.
FORMERLY HENRICK'S NOVELTY CO.

Home Office, 1255 St. Paul Street, INDIANAPOLIS, IND.

136 Liberty Street, New York City
24 California Street, San Francisco, Cal.

PROFITABLE ADVERTISING

consists of placing your selling message before the greatest number of possible buyers.

Motor Boating has the largest guaranteed circulation in the marine field, reaching boat owners exclusively and of a class who can afford to buy what you want to sell. **Write for rates and information.**

C. B. AMES
Business Manager

MoToR BoaTinG

119 West 40th St.
New York City

Jeffery's Marine Glue

The Purposes for Which the Various Grades are Intended:

For Deck and Hull Seams of Yachts and Motor Boats

—USE—

No. 1, Extra Quality

Black, white, yellow or mahogany color. Give black the preference; it is more elastic and satisfactory in every way. Specified by all first-class designers, and used exclusively by all the prominent builders.

For Waterproofing Canvas, for Covering Decks, Tops of Cabins, Canvas Boats, Canoes and Flying Boats

—USE—

No. 7, Soft Quality

Black, white, or yellow. It not only waterproofs and preserves the canvas, but attaches it to the wood, and with a coat of paint once a year will last as long as the boat.

Waterproof Liquid Glue is used for the same purposes as No. 7, Soft Quality

It is ready for use and requires no heating; simply open the can and paint it on, like ready-mixed paint.

Especially recommended for waterproofing the canvas covering of flying boats, and for wing surfaces. This glue will also attach canvas, cork, felt, rubber, leather, and linoleum to iron, steel, or wood.

Special Marine Canoe Glue Best Filler for Canvas Black, White and Yellow

Our 25c. emergency cans made a big hit. Every canoeist should carry one; it is as valuable to him as a repair kit to a bicyclist or automobilist. It is a Johnnie-on-the-spot article that no boatman should be without.

Sent by mail on receipt of 30 cents in stamps.

FOR SHIPS' DECK USE { No. 2, First Quality Ship Glue / No. 3, Special Navy Glue

All put up in 1, 2, 3 and 5-lb. cans; also 14, 28, 56, 112-lb. boxes, either tin or wood

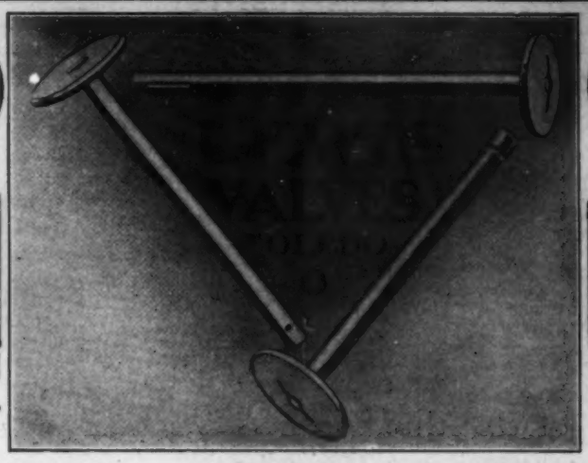
INSIST ON HAVING THE RIGHT KIND IF YOU HOPE TO OBTAIN SATISFACTORY RESULTS

The largest dealer in town carries this in stock; if not, he should. Tell him to write us for the agency.

AGENTS WANTED EVERYWHERE. For Sale by all Yacht, Boat and Canoe Supply Houses and Sporting Goods Dealers.
Send for New Booklet, "Marine Glue. What to use and how to use it."

L. W. FERDINAND & COMPANY **152 KNEELAND STREET, BOSTON, MASS., U. S. A.**

LEWIS



VALVES

Valve Specialists for High Grade Motor Builders

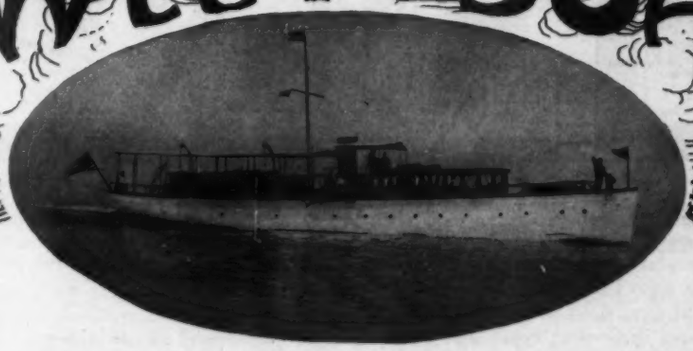
Lewis Valves represent a distinct advantage in quality and economy which has brought us orders from many prominent engine builders. By concentrating our complete facilities on this work alone it is only natural that we can produce better valves, and produce them more economically, than any manufacturer whose attention is divided between the many parts and problems encountered in motor production.

The use of Lewis Valves is a factor for long service and freedom from all valve troubles. When you buy an engine, ask the manufacturer or his representative if he uses Lewis Valves.

MANUFACTURERS: Let us submit quotation upon your requirements

The Lewis Electric Welding & Mfg. Co., 4020 Detroit Ave. Toledo, Ohio

LAWLEY BOATS



It is the high standard of quality rigidly maintained in every Lawley built boat that has made these boats famous in boating circles the world over. This policy has been followed so consistently throughout our forty-nine years of yacht building experience that the name alone is a guarantee of all the advantages that make a finely constructed boat desirable.

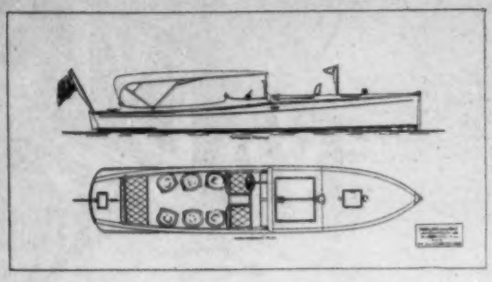
The point of our argument is that whatever size or type of boat you have us build for you, from a little motor tender to a big cruising steam yacht, it will be right and satisfactory in every way. This is the only kind of boat worth having, except in instances where low cost regardless of quality is the controlling factor.

Although cost is a secondary consideration for most Lawley customers, it is a fact that our superior facilities enable us to produce higher quality at the same cost, or equal quality at lower cost, than any other boat builder. That is because we have the largest, best organized and most completely equipped plant of its kind in America.

We build tenders, motor boats, life boats, cruisers, auxiliaries and yachts of all type. Wood, steam, bronze or composite construction. Steam power plants. Lawley Four Cycle Heavy Duty Motors in three models, of 18, 36 and 54 h.p. respectively.

Write for the illustrated Lawley catalog.

George Lawley & Son Corporation, Established 1844 Neponset, Mass., U. S. A. Cable Address: "LAWLEY BOSTON"



THIS is our new 30 x 6 ten passenger stock model family runabout designed for rough water. Especially suitable for Florida service. Prompt deliveries.

THIS is our new 40 ft. x 9 ft. x 2ft. 6in. modified V-bottom Military Type Express Cruiser.

It has accommodations for 8 people, electric starter and lights, running hot and cold water, one man control. An excellent sea boat. Speed, with 6 cylinder Van Blerck, 20 m.p.h. A Standardized stock model. Prompt deliveries.

Our works and yards are the largest in the Mississippi Valley. We build many boats to special order, and have twelve stock model runabouts and cruisers.

PORTFOLIO CATALOG ON REQUEST

Saint Louis Yacht & Boat Co.

SAINT LOUIS

General Offices: - - 1548-1551 Pierce Building

MARINE KNOX MOTORS

Several changes and refinements comprise the 1916 improvements to the famous Knox Marine Motors. Minor details, not fundamentally important in themselves, but of considerable value in the aggregate. These motors have been giving such complete satisfaction for the past fifteen years that we could have no reason for changing the general construction in any way.

Knox Two-Cycle Motors, which are built in one, two and three cylinders, from 3 to 22 H.P., will be furnished in combination two-port and three-port type, instead of straight three-port as heretofore. Circuit breaker and ignition have been improved, and the intake manifold redesigned to accommodate the new Knox Model "E-K" Gasoline-Kerosene Carburetor. Knox 4-cycle models, which are built in two models of 20 H.P. and 40 H.P., respectively, are continued with very slight changes.

Knox Motors were pioneers in the use of kerosene, due to the excellence of the Knox carburetor. Our new Model "E-K" Carburetor is made to use gasoline or kerosene, the fuel being heated by the exhaust gas **before** it passes the needle valve. This method is infinitely better than simply mixing the cold fuel with hot air from the engine base or exhaust pipe. We guarantee that with this carburetor any engine will be just as flexible on kerosene, have full power and will not carbonize. It gives 10 to 30% better results than any other carburetor or kerosene device. No matter what motor you have, you should have one of these carburetors.

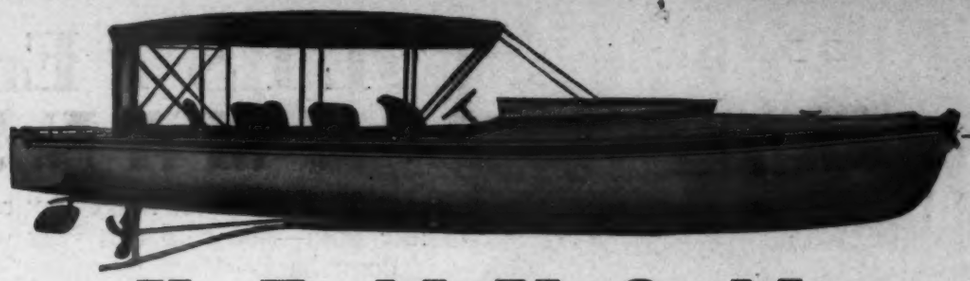
Knox Launches are built in stock models from 19 to 35 feet long. We also build Knox Cruisers on special order. Boats shipped knocked down to foreign countries.

Write today for complete catalogs on the type of motor or boat that interests you.
And be sure to get full information on our wonderful new Model "E-K" Carburetor.

SALESROOMS

W. H. Pieper, 99 East Bay St., Charleston, S. C.
Kaye & McAllister, 160 Prince William St., St. John, N. B.
H. C. Dodson, Box 665, Norfolk, Va.
E. E. Perkins, Chestertown, Md.
H. W. Hibbs, St. Petersburg, Fla.
Chas. Herrick, 159 Franklin St., Boston.
J. P. Halliburton, Boone Bay, Newfoundland.
EXPORT AGENT: A. M. LAWRENCE, 221 W. Broadway, New York, N. Y.

CAMDEN ANCHOR-ROCKLAND MACHINE CO., CAMDEN, MAINE, U.S.A.



K-E-N-Y-O-N

Still Means the Best in Boat Tops

The two big features that you will like about the KENYON Top, are its style and durability. Kenyon Tops and Cockpit Covers are made to order to fit your boat. Light, flexibly strong, waterproof material—rustless enamelled, steel tube frame—fold easily and quickly. One-man side curtain type.

Why experiment when you can be SURE?

KENYON Tops cost no more than the ordinary kind. If you own a boat, or expect to own one, you will enjoy reading the Kenyon Boat Top and Cushion catalog. Free on request.

Kenyon Cushions and Pillows

filled with Kapoc, stand for boat luxury. Kapoc is a silky vegetable fibre that comes from the South Sea Islands and retains its resiliency for years.
Kenyon Cushions and Pillows are light in weight, really handsome in appearance and are *real life preservers* in an emergency.

THE R. L. KENYON COMPANY

500 Meadow Street, Waukesha, Wis.

The DOMAN MARINE MOTOR

DOMAN
Sizes, Types and Equipment

Doman Motors are built in all sizes from 2 cyl. 6 h.p. to 6 cyl. 60 h.p.—High Speed, Medium Duty and Heavy Duty types—the right size and type of motor for every pleasure or commercial boat. Best of equipment, including Schebler carburetor, Detroit Force Feed lubricator, Paragon Reverse Gear, Bosch Magneto, etc. Salt water equipment furnished for any size, if desired. Doman Motors are shipped complete ready to install, no extras to buy.

THE Doman Marine Motor represents a *definite standard of quality.* The price is in direct relation to this standard. You can buy cheaper motors than the Doman—and they *are* cheaper. Quality costs money—quality in materials, in the brains that do the designing, in the workmen who do the building.

Every Doman is an evolution—the *result* of an experience of twenty years. We could almost fill a small museum with the models and parts we have discarded. The Doman of today—whatever type—is the result of the Doman ideal—a determination to build the best marine motor made.

Our slogan, "Why a Doman? Ask an Owner," is at once a challenge and a guarantee. Our two books—The Doman Catalog and the Owners' Book—are the proof of service. Ask us for both of them before you buy.

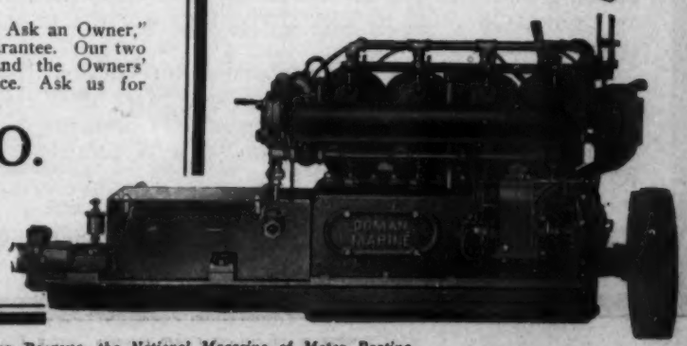
THE H. C. DOMAN CO.

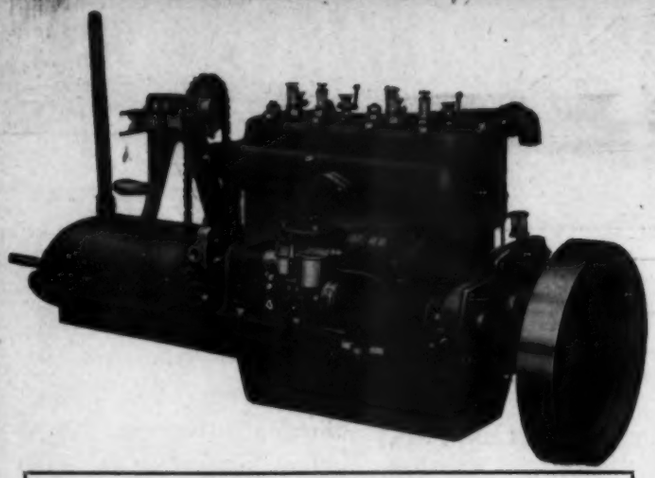
Dept. C, Oshkosh, Wis.

G. H. SCANLON, 202 Fulton Street, New York City
S. V. B. MILLER, Seattle, Wash. HENRY C. HYDE, San Francisco, Cal.
GIBBS GAS ENGINE CO., Jacksonville, Fla.
ALKER-DONAVAN CO., New Orleans, La.

The Motor That Carries Its Own Guarantee of Service

Get This Book
It Tells Why





LISTEN MAN!!!

The Universal Motor makes your silver look like gold—500 sold this year without a come-back—Used in 14, 15, 16, 18, 20, 22, 24 and 26-foot boats.

Four cylinders give perfect balance, and by virtue of our special equipment, we can machine four cylinders as quickly as one cylinder; this system is carried out throughout our plant—hence our low price. Agent's commissions are very close, but the quantity sold with no after troubles, is important.

We guarantee satisfaction. Our reputation hinges on it. We have no trouble in making this guarantee, as every motor leaves the factory fully tested and inspected.

Velvet Smoothness

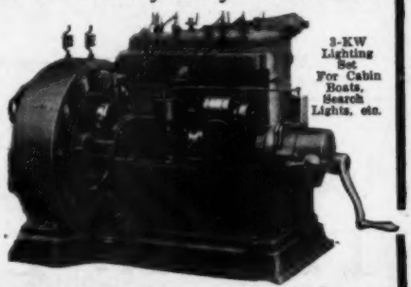
Two Sizes
Type A, 2½x3½, 6 to 8 H.P.
Type C, 2¾x4, 8 to 10 H.P.
Prices $100 to $160

FEATURES

4 cylinders en bloc	Covered reverse gear
Die cast bearings	Convenient controls
Light weight	Magneto ignition
Large bearings	Float feed carbureter
Small parts hardened	Automatic lubrication
One-piece cam shaft	Speed propeller
Ball-thrust bearing	Every detail perfect

Think of a complete 8 H.P., 4-cylinder, 4-cycle engine with magneto, propeller equipment and rear starter for $150 or a 10 H.P. for $160, and fully guaranteed to satisfy.

The Universal Motor can be operated down slow enough to troll or speeded up to 1,500 R.P.M. 16-foot boats are making from 15 to 19 miles per hour, 18-foot boats around 16 miles, etc., depending on weight and lines.



3-KW Lighting Set For Cabin Boats, Search Lights, etc.

SEND FOR CATALOG

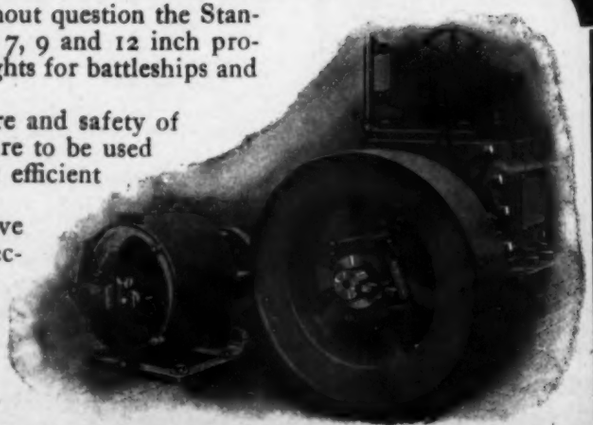
UNIVERSAL MOTOR COMPANY, Oshkosh, Wis., U. S. A.

CARLISLE & FINCH SEARCHLIGHTS

Carlisle & Finch Searchlight Projectors are without question the Standard of the World. We make them in all sizes from 7, 9 and 12 inch projectors for yachts and motor boats to 60 inch searchlights for battleships and the largest passenger boats.

These searchlights are such an aid to the pleasure and safety of cruising that they are invaluable for all boats which are to be used at night. Operated by electricity, they are the most efficient type of searchlights made.

Our launch dynamo illustrated is for friction drive from engine flywheel. We also make several other electric lighting plants and generating sets for launches, yachts and other uses. Sizes from ½ K W to 12½ K W.



Write today for our complete catalog of searchlights, switchboards and generators.

THE CARLISLE & FINCH CO., 261 E. Clifton Ave., CINCINNATI, OHIO

NIAGARA RUNABOUTS

Built-to-Order Quality Stock-Model Economy

Niagara Runabouts have every advantage of the finest built-to-order boats, with the economy which is only possible to secure by producing them on an up-to-date manufacturing basis, substituting standardized plans and modern methods of shop practice for the puttering handwork which adds nothing to the quality. This is the kind of a boat you have always wanted to own. Equal in quality and ability to the most extravagant and still at a price which makes it a conservative investment.

The designs used for Niagara Runabouts are up-to-date in every particular. They are exceedingly comfortable to ride in, easy to control, roomy, dry, substantially built, seaworthy and as fast for their power as can be attained without sacrificing comfort. The predominating Niagara characteristic is comfort and that should be the first consideration in a boat for general use.

In materials, workmanship, finish and appointment Niagara Runabouts are beyond criticism. The location of our plant gives us the opportunity for personal selection from the largest stock of lumber and timber in the world. Every piece we use is absolutely flawless and of the highest grade. Equipment and fittings are the finest one can buy and our standard equipment includes every accessory and necessity customary to use on the best and most complete boats.

The price and speed of Niagara Runabouts depend upon the amount of power installed. This puts the whole matter at the option of the purchaser so that we can provide our boats to meet any requirements.

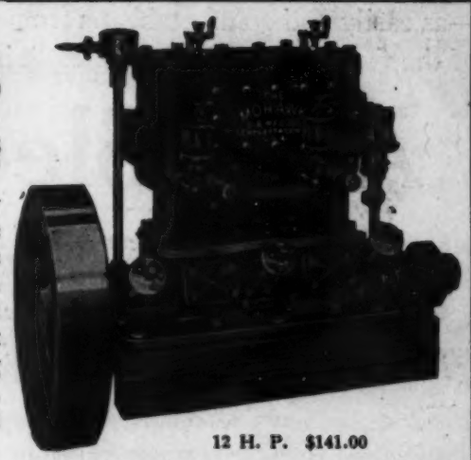
Write today for full information and prices of Niagara Runabouts. We can submit estimates on any special arrangements you care to have. We are also equipped to build cruisers and any other type of motor boat from special plans. Let us hear from you.

NIAGARA MOTOR BOAT COMPANY
NORTH TONAWANDA, N.Y. U.S.A.

Mohawk Two Cycle Marine Motors

The Motor that Makes Motor Boating a Pleasure

The acme of simplicity and reliability in marine motor design is reached in the construction of Mohawk Two Cycle Motors. You can say what you please about the big four cycle engines that are bought by people who don't care how much they pay, and who have experts to look over their complicated adjustments frequently and keep them in running order. But as a matter of fact the majority who indulge in motor boating for pleasure or pastime, and many who make it their business, have turned to the simpler two cycle motor as the ideal form of power plant for all ordinary boats.



12 H. P. $141.00

Mohawk Motors are built in two port, three port, and combination two-three port types, from one to four cylinders and from 3½ to 30 horsepower. Each motor is adapted for a certain type or size of boat, or a certain kind of work. Some are extreme high speed engines, and have won many a cup or championship for their happy owners. Some are heavy duty motors built for the hardest kind of work in commercial boats and heavy cruisers. Some are medium speed, medium weight motors for boats of average construction. All are equally well built and designed to give maximum service with minimum fuel consumption in some particular line of service.

Two-Port Type Kerosene-Gasoline	Combination Two-Three Port
1 Cylinder, 6 H. P.	1 Cylinder, 5-6 H. P.
2 Cylinders, 12 H. P.	1 Cylinder, 7 H. P.
4 Cylinders, 25 H. P.	2 Cylinders, 10-12 H. P.
	2 Cylinders, 14-20 H. P.
Three-Port Type	3 Cylinders, 15 H. P.
1 Cylinder, 3½ H. P.	3 Cylinders, 15-21 H. P.
1 Cylinder, 6 H. P.	3 Cylinders, 21-30 H. P.
2 Cylinders, 7 H. P.	

Many superior features contribute to the all around excellence of Mohawk construction. Double ignition, auxiliary air intake, extra large valve ports, four rings on each piston, and many others of equal value are used. It is not uncommon for a Mohawk to start on the spark several hours after it is stopped, and in warm weather it starts on the spark even on the day after it was stopped. Three of our models are built especially to use kerosene as well as gasoline.

You will find extreme satisfaction and great economy in any Mohawk Motor you buy. Or if you aren't fully satisfied, we will replace the motor or refund your money. We also guarantee to replace any defective parts free within one year.

Write to-day for the latest Mohawk catalog. Tell us about your boat and we will tell you which model it needs.

S-R Manufacturing Co., Ingersoll Avenue, SCHENECTADY, N. Y.

Over the Ice a Mile-a-Minute Whee! There's the Sport!

RACING down the wind like a bird a-wing, cheeks glowing, nostrils dilating, every nerve tense with the thrill of this newest, most exhilarating outdoor sport—Aero-sledding. No waiting for favorable winds; *you* control the speed—the direction—as easily and comfortably as from the seat of the finest racing automobile. The

Aero-Sled

is not a fad—not an experiment. It's a means of locomotion as tried-and-true as the motorcycle, correct in principle, unfailing in operation. A powerful emergency brake brings your Aero-sled to a standstill in a couple of lengths. You are master—it is yours to command. The motor is silent, vibrationless. As steady as that of the bird-man whose life depends on his engine. Every lake and frozen stream calls your Aero-sled. Better health and the love of clean sport demand it. Price $125 complete. Shipped by fast freight. Carriage charges prepaid to any point east of the Rockies.

The Old Way

Write at once for the illustrated booklet "Aero-Sledding—Prince of Them All."

AERO-SLED COMPANY

1370 Wells Street Chicago, Illinois

Motor Boat and Yacht Clubs of America

(*Continued from page 90*)

Red Wing Y. C., Red Wing, Minn.
Remlik B. C., Binghamton, N. Y.
Renforth Ath. & Outing Assn., Renforth, N. B.
Revere Y. C., Beachmont, Mass.
Rhode Island Y. C., Pawtucket, R. I.
Richmond Y. C., Richmond, Va.
Ridgefield Park B. C., Ridgefield Park, N. J.
Riverhead Y. C., Riverhead, L. I.
Riverside Y. C., Essington, Pa.
Riverside B. C., Toledo, O.
Riverside P. B. C., Springfield, Ill.
Riverside Y. C., Essington, Pa.
Riverside Y. C., Riverside, Conn.
Riverton Y. C., Riverton, N. J.
Roebling Y. C., Roebling, N. J.
Robbins Reef Y. C., Bayonne, N. J.
Roche Harbor Y. C., Roche Harbor, Wash.
Rochester Y. C., Summersville, N. Y.
Rochester Y. C., Rochester, N. Y.
Rockaway Point Y. C., Rockaway, L. I.
Rockford B. C., Rockford, Ill.
Rockledge-Cocoa Y. C., Cocoa, Fla.
Rock River B. C., Sterling, Ill.
Rock River M. B. C., Crawfordsville, Ind.
Rondout Y. C., Kingston, N. Y.
Roseville Y. C., Bay Head, N. J.
Rowayton Y. C., S. Norwalk, Conn.
Royal Bermuda Y. C., Hamilton, Bermuda.
Royal Canadian Y. C., Hamilton, Can.
Royal Cape Breton Y. C., Sydney, Cape Breton.
Royal Hamilton Y. C., Hamilton, Can.
Royal Kennebeccasis Y. C., Millidgeville, N. B.
Royal Nova Scotia Yacht Squadron, Halifax, N. S.
Royal St. Lawrence Y. C., Quebec, Can.
Royal Vancouver Y. C., Vancouver, B. C.
Royal Victoria Y. C., Vancouver, B. C.
Rumson Country Club, Rumson, N. J.
Sachem's Head Y. C., Sachem's Head, Conn.
Sacramento B. C., Sacramento, Cal.
Saddle Cycle & Club Fleet, Edgewater, Chicago, Ill.
Sag Harbor Y. C., Sag Harbor, L. I.
Saginaw B. C., Saginaw, Mich.
Salem Rod, Gun & Y. C., Salem, N. J.
San Diego Y. C., San Diego, Cal.
Sandusky M. B. Assn., Sandusky, O.
Sandusky Y. C., Sandusky, O.
Sandy Hook Bay Y. C., Atlantic Highlands, N. J.
San Francisco Y. C., Sausalito, Cal.
San Raphael Y. C., San Raphael, Cal.
Saranac Lake M. B. C., Algonquin, N. Y.
Saugus River Y. C., Lynn, Mass.
Sausalito Y. C., Sausalito, Cal.
Savanna B. C., Savanna, Ill.
Savannah Y. C., Thunderbolt, Ga.
Savin Hill Y. C., Savin Hill, Dorchester, Mass.
Schenectady B. C., Scotia, N. Y.
Scituate Y. C., Scituate, Mass.
Seaside Park Y. C., Seaside Park, N. J.
Sea Cliff Y. C., Sea Cliff, L. I.
Sea Gulf Y. C., Canarsie, L. I.
Seal Harbor Y. C., Seal Harbor, Me.
Sea Isle Y. & M. B. C., Sea Isle City, N. J.
Seattle P. B. C., Seattle, Wash.
Seattle Y. C., Seattle, Wash.
Seawanhaka Cor. Y. C., Oyster Bay, L. I.
Seneca Falls Y. C., Seneca Falls, N. Y.
Sequoia Yachting & Boating C., Eureka, Cal.
Sewaren M. B. C., Sewaren, N. J.
Sewaren Land & Water Club, Sewaren, N. J.
Shattomuc Y. & Can. C., Ossining, N. Y.
Shawano B. C., Shawano, Wis.
Sheepshead Bay M. B. C., Sheepshead Bay, New York City.
Sheboygan M. B. C., Sheboygan, Wis.
Sheepshead Bay Y. C., Brooklyn, N. Y.
Shelbourne Y. C., Shelbourne, N. S., Can.
Shelldrake Y. C., Mamaroneck, N. Y.
Shelter Island Y. C., Shelter Island Heights, N. Y.
Shenandoah Y. C., Green Island, N. Y.
Sherman Y. C., Magnolia Springs, Chautauqua, N. Y.
Shinnecock Y. C., Quogue, L. I.
Shoquoquon B. C., Burlington, Ia.
Shrewsbury Ice B. & Y. C., Long Branch, N. J.
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Sophia Y. C., Avelon, Cal.
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South Bay Y. C., Alviso, Cal.
South Bay Y. C., Patchogue, L. I.
South Boston Y. C., Marine Park, S. Boston, Mass.
South Coast Y. C., San Pedro, Cal.
Southern Y. C., New Orleans, La.
South Shore Country Club Yachtsmen, Chicago, Ill.
South Shore P. B. C., Chicago, Ill.
South Shore Y. C., Freeport, L. I.
South Shrewsbury Ice & Boat Y. C., Branchport, N. J.
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St. Albans Y. C., Philadelphia, Pa.
St. Albans Y. C., St. Albans, Vt.
St. Andrews Y. C., St. Andrews, N. B.
St. Augustine Y. C., St. Augustine, Fla.
St. Augustine P. B. C., St. Augustine, Fla.
St. Catherine M. B. C., St. Catherine, Ont.
St. Charles Boating Assn., St. Charles, Mo.
St. Georges Y. C., St. Georges, Bermuda.
St. Johns Y. C., St. Johns River, Quebec, Can.
St. John P. B. C., Marble Cove, St. John, N. B.
St. Louis Y. C., St. Louis, Mo.
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St. Paul M. B. C., St. Paul, Minn.
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Stamford M. B. C., Stamford, Conn.
Stamford Y. C., Shippan Point, Stamford, Conn.
Stevens Point B. C., Stevens Point, Wis.
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Stokes Y. C., Trenton, N. J.
Stone Harbor Y. C., Stone Harbor, N. J.
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Sunset Y. C., Long Beach, Cal.
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Tarratine C., Dark Harbor, Me.
Tarrytown B. C., Tarrytown, N. Y.
Tarrytown Y. C., Tarrytown, N. Y.
Taunton Y. C., Dighton, Mass.
Tawas Beach Yachting Assn., Tawas City, Mich.
Terrebonne M. B. Assn., Houma, La.
Terre Haute M. B. C., Terre Haute, Ind.
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Thousand Islands Y. C., Alexandria Bay, N. Y.
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Toledo Y. C., Toledo, O.
Tomaquat Y. C., Emmons Ave., Sheepshead Bay, N. Y.
Tompkinsville B. C., Tompkinsville, S. I.
Toms River Y. C., Toms River, N. J.
Topeka M. B. C., Topeka, Kans.
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Troy M. B. C., Troy, N. Y.
Twin City B. C., Tonawanda, N. Y.
Twin City P. B. Assn., Menasha, Wis.
Tyoga M. B. C., Ticonderoga, N. Y.
United Shoe Machinery M. B. C., Beverly, Mass.
Unity Y. C., Nantucket Point, Mass.
Unqua Corinthian Y. C., Amityville, L. I.
Upper Saranac Lake Y. C., Upper Saranac P. O., N. Y.
Utica M. B. C., Utica, N. Y.
Vallejo Yachting & Rowing C., Vallejo, Cal.
Venango M. B. & C. C., Oil City, Pa.
Ventnor City Y. C., Atlantic City, N. J.
Vermilion B. C., Vermilion, O.
Victoria Y. C., Victoria, B. C.
Victoria Y. C., Hamilton, Ont.
Vigilant Y. C., The Raunt, Jamaica Bay, L. I.
Virginia Y. C., Hampton, Va.
Volunteer Sailing C., New Haven, Conn.
Volunteer Y. C., Lynn, Mass.
Wading River Y. C., Riverhead, L. I.
Wakefield Y. C., North Wakefield, R. I.
Walkerville B. C. Yachtsmen, Walkerville, Ont.
Walloon Y. C., Walloon Lake, Mich.
Washington M. B. C., Sacramento, Cal.
Washington Park Y. C., Providence, R. I.
Watch Hill Y. C., Watch Hill, R. I.
Waterloo M. B. C., Waterloo, Ia.
Waternook B. C., Watersfield, Conn.
Watertown M. B. C., Watertown, Wis.
Watuppa B. C., Fall River, Mass.
Waukoma Y. C., New Haven, Conn.
Waupaca P. B. C., Waupaca, Wis.
Weetamoe Y. C., North End, Fall River, Mass.
Wegota Y. C., Clason Point, Bronx, New York City.
Wellfleet Y. C., Wellfleet, Mass.
Wessagussett Y. C., North Weymouth, Mass.
Westchester M. B. C., Clason Point, Bronx, N. Y.
West End B. C., Harrisburg, Pa.
West End B. C., Ft. 163rd St., New York City.
West End B. C., Central Ave., Chester, Pa.
Westerly Y. C., Westerly, R. I.
Western B. C., Duluth, Minn.
Western Nova Scotia Y. C., Digby, N. S.
Westfield Outing Assn., Westfield, N. B.
Westville P. B. Assn., Westville, N. J.
West Hudson Y. C., Kearny, N. J.
West Lynn Y. C., Lynn, Mass.
White Bear Y. C., White Bear Lake, Minn.
White Lake Y. C., Whitehall, Mich.
Whitestone Y. C., Whitestone, L. I.
Wianno Y. C., Wianno, Mass.
Williamsburgh Y. C., North Beach, New York City.
Wildwood Y. C., North Wildwood, N. J.
Wilmington Y. & Auto C., Gordon Heights, Del.
Willow Y. C., Salem, Mass.
Windward Y. C., Riverbank, N. J.
Winnipeg Y. C., Winnipeg, Can.
Winnepesaukee Y. C., Alton Bay, N. H.
Winona P. B. Assn., Winona, Minn.
Winthrop Y. C., Winthrop, Mass.
Wissinoming Y. C., Wissinoming, Pa.
Wollaston Y. C., Wollaston, Mass.
Woods Hole Y. C., Woods Hole, Mass.
Woodbury Y. C., Woodbury, N. J.
Yachtsmen's Club, Philadelphia, Pa.
Yacht and Anglers' C., Pass-a-Grille Island, Fla.
Yale Corinthian Y. C., New Haven, Conn.
Yarmouth Y. C., Yarmouth, N. S., Can.
Yarmouth Y. & Boating C., Yarmouth, N. S., Can.
Ydrad P. B. C., Lafayette, Ind.
Yonkers B. C., Yonkers, N. Y.
Yonkers Cor. Y. C., Yonkers, N. Y.
Yonkers Y. C., Yonkers, N. Y.
Zanesville M. B. C., Zanesville, O.

E. J. Willis Co.

85 CHAMBERS STREET
NEW YORK

The Most Complete Motor Boat Supply House

Complete Catalog "B" of Motor Boat Supplies Mailed FREE

New "Eureka" Steerer

Price $6.49

Bemns Ball Contact Timers

1 Cyl., $2.50; 2 Cyl., $2.75; 4 Cyl., $3.25.

"Mitchell" Collapsible Seat

Entirely New. Piano Finish, Extra Strong Spar, Coated, Guaranteed.

Diam., 11"; Pol. Oak, $2.25.

Wilco Exhaust Cover

Pol. Brass.....$1.50

Electric Switch

3 Pull.. 1.13
2 Pull.. .75
1 Pull..$0.38

Wilco Curtain Fastener

Single, Per Doz., $3.49; Double, Per Doz., $3.69.

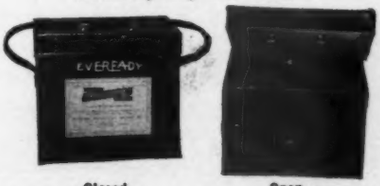
Fender Hook

Pol, Brass, Ea., $0.12.

Wilco Lavatory

Complete $7.75

Eveready Dry Cell Case



Closed. Open.

6 Cell Case $0.98

Mr. Motor Boat Owner:

Have we ever had the pleasure of supplying you with the fittings for your Motor Boat?

We are the originators of CUT-RATE PRICES in marine and fishing tackle supplies, and by glancing over our complete CUT-RATE CATALOGS "B" and "G," which we will send you free upon request, you will be convinced that our prices are right.

The new parcel-post system coupled with our cut-rate prices, makes buying by mail economical and satisfactory.

GIVE US A TRIAL ORDER.

We guarantee every article we sell and refund the amount paid if not found as represented.

We are leading dealers in Automobile Supplies, also Motor Cycle and Bicycle requisites, and will mail catalogs on request.

Yours very truly,
E. J. WILLIS Co.
85 Chambers St., New York.

Established 20 years.

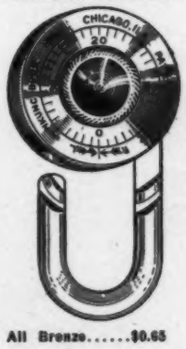
Jeweled Centre Stop Needle Pocket Compass

Price $0.98

S-M Barometer

Price $6.98

Combination Lock



All Bronze.....$0.65

Electric Searchlight

8½ In. Front...$7.50

Electric Class 1 Light

6 Volt, 6 C.P....$4.95

Volt and Ammeters

Ammeter, 15-0-15, $1.50
Volt-meter, 15-0-15 ..... 1.50

Special Lighting Batteries

6 Volt, 60 Amp.....$9.50

Electric Light Fixture

6 V., 6 C.P.....$1.75

Wilco Motor Boat Switchboard

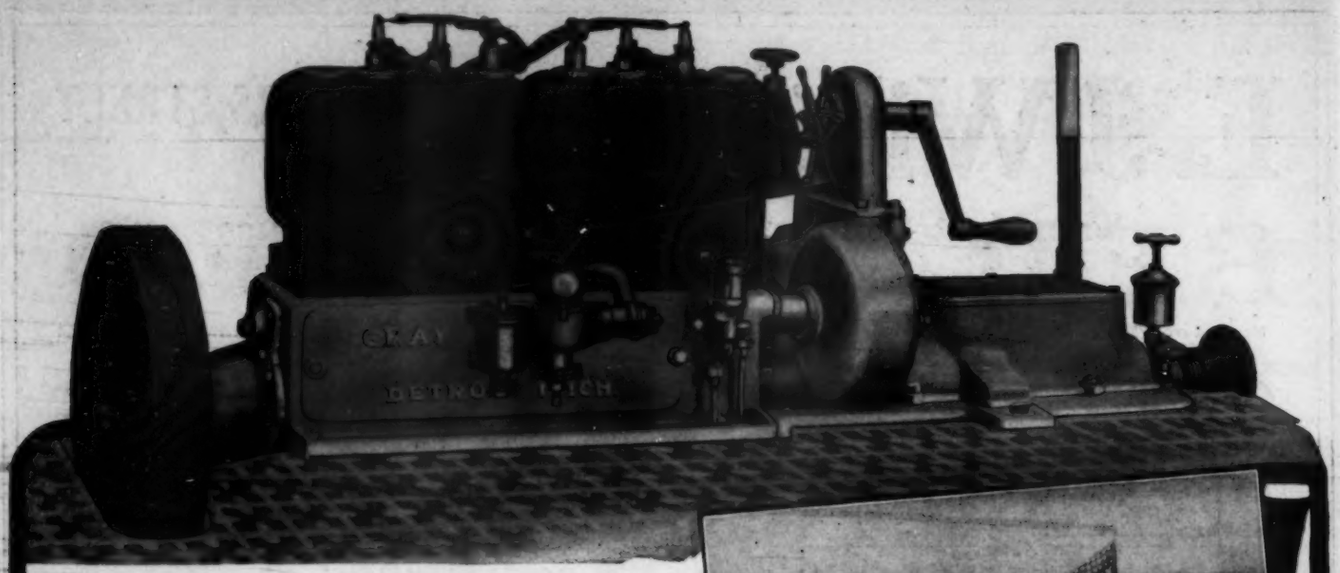
Price $8.95

Electric Pull Switch Fixture

6 V., 6 C.P.....$1.75

Eureka Lighting Generator with Automatic Cut Out

Capacity 35 C.P.....$22.50



Gray Model "D" 4-Cycle

THE UNIVERSAL ENGINE

Made good in every case. Speed-boat, Work-boat, Cruiser and House-boat.

Designed strictly for *marine* work—a real *marine* motor with all the marine features you have always wanted at a *moderate* price. Manufactured and backed up by an old established and responsible concern.

10-12 H. P. Model "D" 4-Cycle

Designed especially for fishing boats or any other boats where reliability, strength and endurance are the chief factors. Can be throttled down to slow enough speed for trolling.

Model "D" Four-Cycles, Price... $178.00 up

GRAY TWO-CYCLES—Recognized all over the world as the standard two-cycle marine motor. Made in sizes 3 to 36 H.P.—one to three cylinders.

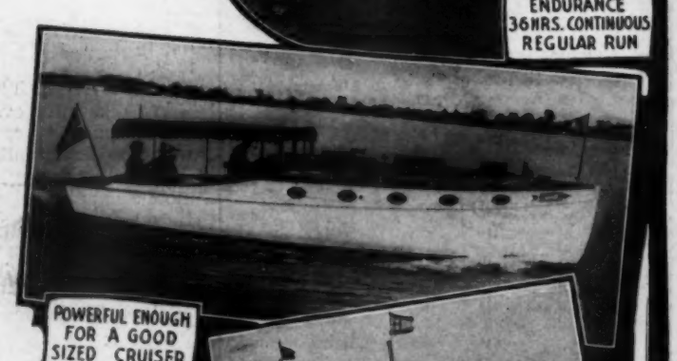
Write today for new marine catalog, showing complete line of GRAY two- and four-cycle marine motors.

BOAT BUILDERS—Let us help sell your boats. Write for our 1916 co-operative plan.

DEALERS—The GRAY line is complete—2 and 4-cycles—3 to 50 H.P. Write for our 1916 proposition.

GRAY MOTOR CO.

1274 Gray Motor Bldg. Detroit, Michigan



GRAY MARINE 2 STROKE & 4 STROKE MOTORS

Sterling THE ENGINE of REFINEMENT For the finest boats that float

IGNITION NOW

BERLING-IZED

Not because of prestige, but because of proved reliability, the Sterling people (like other world-renowned marine engine makers) have equipped their new Model F, 8-cylinder with the

BERLING MAGNETO

Sterling THE ENGINE of REFINEMENT For the finest boats that float

MANUFACTURED BY

STERLING ENGINE CO.

1252-1274 NIAGARA STREET.

BUFFALO, N.Y. U.S.A.

October 22, 1915.

Ericsson Mfg. Co.,
Buffalo, New York.

Gentlemen:-

Here is an illustration of our new Model F, eight cylinder, marine motor, which has a bore of 5½" and a stroke of 6½", developing in B.H.P. tests something in excess of 200 HP. at 1500 R.P.M. The ignition system used on this engine consists of a Berling magneto.

This motor has recently been subjected to some exceedingly severe tests from which it has emerged with an absolutely perfect score. These tests consist of an eight hour continuous run at 1400 R.P.M., the engine running smoothly and quietly throughout this period without a stop or a miss.

We are pleased to inform you that we have manufactured a large number of these motors for both domestic and foreign markets and that the Berling magneto with which they are equipped is giving the best of satisfaction.

Yours very truly,

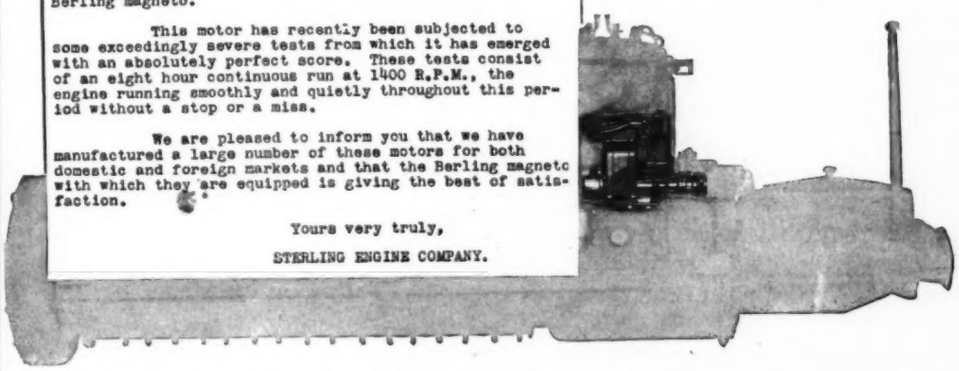
STERLING ENGINE COMPANY.

Because

The quick, snappy action of the interrupter is the same at all speeds. The centrifugal force (instead of being a detriment) is an insurance of its positive action.

Waterproofness is insured by the solid frame which protects the vital parts of the magneto without gaskets or packing. The terminal fits snugly but can be removed easily without the use of any tools.

The special construction of the field gives a fat spark at all positions of the timing lever. This means steady power at low speds.

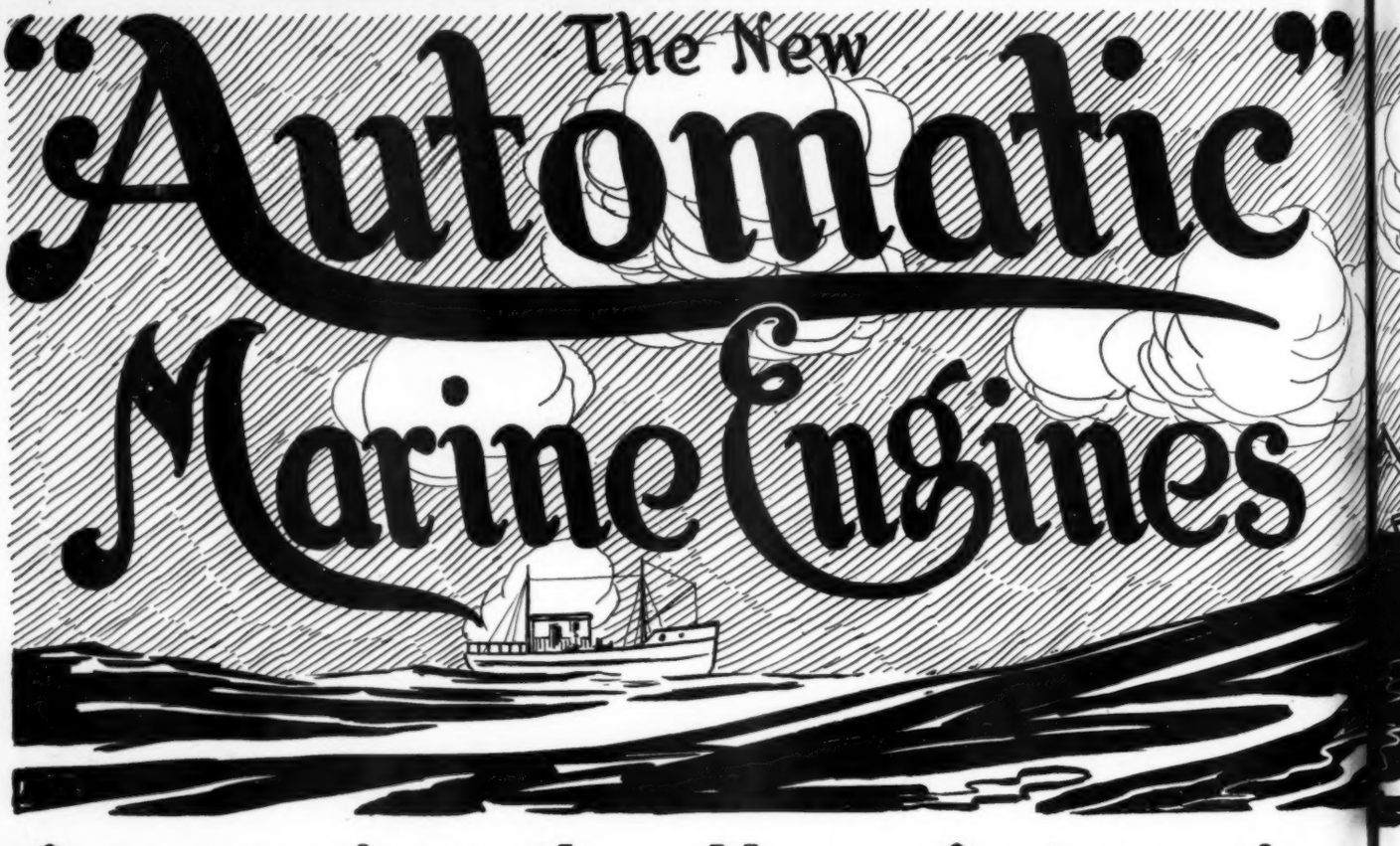


The one-piece frame combines the base, top, pole pieces and end bearing in one rigid unit, not affected by wear or vibration. This construction assures permanent alignment of field and armature.

Ask Us About Our 2-Spark Dual Magnetos for 8, 6 and 4 Cylinder Marine Motors

BERLING MAGNETOS

Made by the **ERICSSON MANUFACTURING CO.,** 1105-1145 Military Road Buffalo, N. Y., U. S. A.

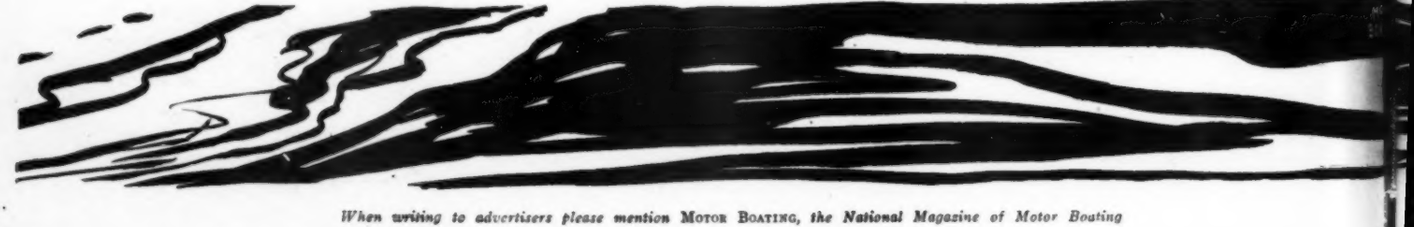


Announcing the New Automatic Cruiser and Yacht Engines

Automatic Marine Engines have been famed for their stability and endurance in the heaviest working boats and auxiliaries for many years. It seems that we have developed our heavy duty marine motors to the highest possible degree of refinement. They have won such an enviable reputation in this class of work that there have been repeated demands for a cruiser and pleasure boat engine which would have the same desirable Automatic characteristics.

In response to this demand we announce a new type of Automatic which has been designed particularly for the cruiser and yacht trade. The design is different from our heavy duty type in a number of details, but the quality is the same. It is built in the best possible manner, with the finest materials and workmanship to be had, and with the same excess margin of strength over usual requirements for every working part.

We have never had to acknowledge a superior in the commercial field. With our new motors we expect to find no superiors and few equals in the pleasure field. Although we say "new," it must be understood that these medium weight engines are not experimental in any way. They have been slowly developed by our engineers during several years past and a number of them have been sold and used for various kinds of work with extreme satisfaction in the last two seasons.



As Good in Their Way as the Famous Heavy Duty Automatics

That is saying a great deal—about all there is to be said, in fact. But we hope to have our statement challenged because we are satisfied that any investigation or trial of this engine will substantiate every claim we have made.

The Automatic Cruiser Engines are of course not so heavy as our regular models, but they are equal in every way to any emergency of the kind of service for which they are to be used. They are all enclosed, four models of four cylinder four cycle type, bore and stroke being 5 x 7″, 6½ x 8″, 7½ x 9″ and 8½ x 10″ respectively. Designed to operate at 400 to 1000 R. P. M.

In the new Automatics we use independent "L"-type cylinders with large mechanical valves. These valves can be reground and seated without removing the cylinder head. All bearings are extra large, are removable and made of a special bronze, no babbitt being used. The Oiling System is entirely enclosed, an integral part of the engine itself—something absolutely new in the marine field. Ignition is Jump Spark only, any make of magneto and carburetor being supplied at the option of the purchaser.

For those requiring a heavy duty motor we still build the incomparable Automatic Heavy Duty in all sizes from 3 to 250 H. P. In oyster dredges, tow boats, auxiliaries and other heavy service craft, no other engine has made a more satisfactory record.

Write us today for catalog of the type in which you are interested

The Automatic Machine Co.

BRIDGEPORT, CONNECTICUT, U. S. A.

Agents and Distributors in Every Part of the Globe

"SANDS" MARINE SANITARY FIXTURES

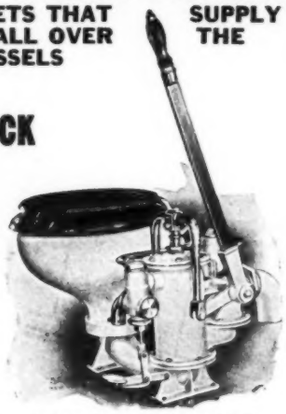
A SPLENDID ASSORTMENT OF HIGH GRADE RELIABLE PUMP CLOSETS THAT SUPPLY THE WORLD BY DEMAND FOR QUALITY, SERVICE AND EFFICIENCY. USED ALL OVER DISCRIMINATING BUILDERS. OWNERS AND DESIGNERS OF VESSELS REQUIRING PERFECT SANITATION.

IMMEDIATE SHIPMENT FROM STOCK

"NATIONAL." PLATE S-2010.
(Patented—Copyrighted.)

"FLORIDA." PLATE S-2015.
(Patented—Copyrighted.)

"HURON." PLATE S-2035.
(Patented—Copyrighted.)



"IOWA." PLATE S-2040.
(Patented—Copyrighted.)

PLATE S-127

The "Grandby" Round Way Sea Cock. For large closets.

		Price
1	inch	$4.00
1¼	"	5.50
1½	"	7.00
2	"	11.00
2½	"	16.00

The Superior Appointments of These High Grade Closets Will Appeal to Discriminating Owners

FOR USE ABOVE OR BELOW WATER LINE

PLATE S-126

The "Glenora" Composition flat way sea cock.

		Price
¾	inch	$2.25
1	"	3.00
1½	"	5.25
2	"	8.00
2½	"	12.00
3	"	18.00

PLATE S-130
The "Alton" Brass Inlet Connection. Iron Pipe: ¾ in., $1.75; 1 in., $2.25; 1½ in., $3.75.

THE "FRISCO"—PLATE S-2046
(Design Patented—Copyrighted.)

Sanitation on Your Boat is Just as Important as in Your House

"MOHAWK IMPROVED." PLATE S-2030.
(Patented—Copyrighted.)

Plate S-2010 **"National" Pump Closet,** Vitro-Adamant Pedestal Bowl, 5" Combined Supply and Waste Pump. Price: Rough pump, finished trimmings, oak woodwork **$133.00**

Plate S-2015 **"Florida" Pump Closet,** Vitro-Adamant Pedestal Bowl, 4" Combined Supply and Waste Pump. Price: Rough pump, finished trimmings, oak woodwork..... **$100.00**

Plate S-2035 **"Huron" Pump Closet,** Vitro-Adamant Hopper Bowl, 5" Combined Supply and Waste Pump. Price: Rough pump, finished trimmings, oak woodwork **$120.00**

Plate S-2040 **"Iowa" Pump Closet,** Vitro-Adamant Hopper Bowl, 4" Combined Supply and Waste Pump. Price: Rough pump, finished trimmings, oak woodwork..... **$85.00**

Any of the Above Closets—Pump White Enameled, Nickel Plated Trimmings; Mahogany Woodwork, Add $12.00

THE QUALITY, CONSTRUCTION, EQUIPMENT AND OPERATION OF "SANDS" FIXTURES IS THE BEST IN THE WORLD

Plate S-2030 **"Mohawk Improved" Pump Closet,** Vitro-Adamant Hopper Bowl, 3" supply and waste pump. Price: Rough pump, oak woodwork..... **$70.00**

Excellent Heavy Closet for Commercial Use at Low Price

Plate S-2045 **"Frisco" Pump Closet,** Extra Heavy Vitro-Adamant Oval Hopper Bowl, 3" combined supply and waste pump. All Metal Parts Smoothed, Handle Nickel Plated. Price, with Oak Seat **$59.00**

Plate S-2046 **"Frisco" Pump Closet,** same as above, with oak seat and cover **$60.00**
(The "Frisco" Closet always sent with Pump at Left Hand as shown unless right hand pump is specified.)

A Heavy Duty Closet Especially Designed for Submarines

Plate S-2026 **"Tarpon" Extra Heavy Reinforced** Pump Closet, made specially for submarine vessels. Will discharge against pressure of 75 pounds. Heavy Vitro-Adamant Oval Flushing Rim Bowl, special composition, 3" waste pump, "Sands" Improved Automatic Safety Supply Foot Valve. Rough pump, oak woodwork **$135.00**

A SPECIAL SINGLE VALVE CLOSET USED ABOVE WATER LINE ONLY

Plate S-2070 **"Commercial" Closet for "Work Boats,"** Vitro-Adamant Oval Bowl, composition flush valve. Metal parts painted white, with N. P. trimmings, oak seat; no cover **$47.50**
SEAT WITH COVER, ADD $1.50.

CLOSETS FOR SMALL BOATS WHERE SPACE IS LIMITED

Plate S-31-A **"Yukon" Pump Closet,** Vitro-Adamant Pedestal Bowl, 2½" supply and waste pump. Price, Rough pump, oak woodwork **$55.00**

Plate S-34 **"Knockabout" Pump Closet,** Vitro-Adamant hopper bowl, 2½" supply and waste pump. Price: Rough pump, polished trimmings, oak woodwork **$49.00**

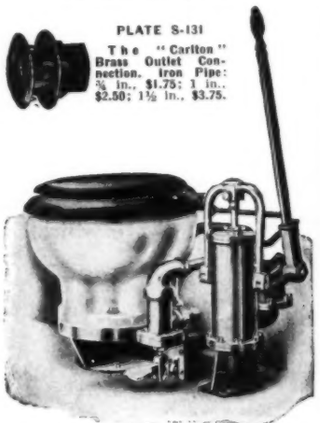
Plate S-2060 **"Winner" Pump Closet,** fitted with oak seat only.. **$19.00**

Plate S-2061 **"Winner" Pump Closet,** Vitro-Adamant Hopper Bowl, 2½" supply and waste pump. Price: Rough pump, oak seat and cover **$20.00**

Plate S-2050 **"Bow" Pump Closet,** Vitro-Adamant Hopper Bowl, 2½" supply and waste pump in rear of bowl. Price: Rough pump, oak woodwork **$30.00**

Inlet and outlet of all pump closets are protected by "Sands" Patent Backwater Check Valve and "Sands" Patent Automatic Safety Supply Foot Valve.

PLATE S-131
The "Carlton" Brass Outlet Connection. Iron Pipe: ¾ in., $1.75; 1 in., $2.50; 1½ in., $3.75.



"TARPON." PLATE S-2026.
(Patented—Copyrighted.)

"COMMERCIAL." PLATE S-2070.
(Patented—Copyrighted.)

"YUKON." PLATE S-31A.
(Patented—Copyrighted.)

"KNOCKABOUT." PLATE S-34.
(Patented—Copyrighted.)

PLATE S-2062.

The "Angle" Composition Flanged Sea Valves, with straight couplings, for use on the supply and discharge of small pump closets. Price per pair with strainer for supply **$6.00**

"WINNER." PLATE S-2061.
(Patented—Copyrighted.)

THE "BOW" CLOSET. PLATE S-2050.
(Patented—Copyrighted.)

Complete line of closets, lavatories, and specialties described in NEW Catalogue "R" ready in near future, sent free on request.

A. B. SANDS & SON COMPANY

Largest Manufacturers in the World MARINE PLUMBING SPECIALISTS 22-24 Vesey St., New York, U. S. A.

1849—"SIXTY-SIX YEARS OF QUALITY"—1915

THE RECOGNIZED STANDARD OF THE WORLD

A MARK OF INTEGRITY AND AN ENVIABLE REPUTATION SUSTAINED BY "SANDS QUALITY FIXTURES," FOR OVER HALF A CENTURY.

A COLLECTION OF LAVATORIES, PUMPS, PORT LIGHTS AND SPECIALTIES IN STOCK FOR IMMEDIATE SHIPMENT

Plate S-150

The "Glenwood" Folding Lavatory, with Vitro-Adamant oval basin, N. P. copper lining. N. P. brass double-acting pump. N. P. brass trimmings.
Quartered oak, polished finish.....$42.50
Mahogany, polished finish..... 44.00

Plate S-152

"Croton" Folding Lavatory, same as Plate S-150, except with faucet for pressure or gravity supply.
Quartered oak, polished finish $37.50
Mahogany, polished finish 39.00

Plate S-3183

The "Manatee 14" Vitro-Adamant, Flat Back Lavatory, with N. P. Basin Pump and waste fittings; no trap $22.75

Plate S-3180

The "Menard" Lavatory, same as Plate S-3183, except with faucet, instead of pump and with N. P. Full "S" Trap $13.25

Plate S-145

The "Hobron" Vitro-Adamant Folding Lavatory. N. P. brass combination self-closing faucet for hot and cold water. N. P. brass waste coupling and towel rack. Complete...$42.50
Weight: Net, 45 lbs.; Gross, 75 lbs.
Dimensions: Height over all, 26½ in.; width, 16½ in.; depth open, 17 in.; depth closed, 7 in.

Plate S-3190

The "Mono 12" Vitro-Adamant Corner Lavatory with N. P. Brass Pump and waste fittings and N. P. Full "S" Trap..$24.50

PLATE S-3196

The "Macon" Lavatory; same as Plate S-3190, except with faucet, instead of pump and without trap $9.25

Plate S-186

The "Arco" Folding Lavatory, N. P. copper basin and slab, N. P. composition single-acting pump, N. P. Copper lining; oak woodwork $25.00
Height over all, 19⅛ inches; width, 15 inches; depth closed, 5½ inches; depth open, 10⅜ inches; basin, 10 inches.

Plate S-187

"Arco" Folding Lavatory; same as Plate S-186, except with faucet.
Oak Woodwork $22.50
Mahogany Finish 25.00

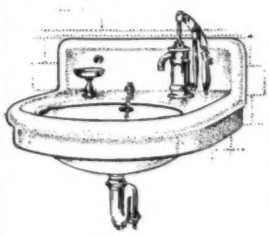


Plate S-208B.

The "Madison" Vitro-Adamant Lavatory in one piece, N. P. double acting brass pump. N. P. brass full "S" trap, with waste pipe to deck. White enameled bulkhead brackets.
Price $35.00

Plate S-207B

The "Majestic" Lavatory, same as above except square front.....$35.00

Plate 130¾-B

Cast Bronze Round Raised Strainer.
2½" $0.35
3" ..... .50
4" ..... .65
5" 1.00
6" 1.50
7" 2.25
8" 3.00

Plate S-132½

Cast Bronze Combination Inlet Connection with Strainer and Scoop.	I.P.	L.P.
½"	$2.25	$2.65
¾"	2.50	2.90
1"	3.00	3.40
1¼"	3.75	4.25
1½"	4.50	5.00

Plate S-5202

Universal Polished Brass Rope Lead.
¼" $0.35
⅜" ..... .50
½" ..... .75

Plate S-3186

The "Modec" 12" round front Vitro-Adamant Lavatory, with N. P. Compression faucet, waste fittings and full "S" trap..$11.20

Plate S-128

The "Helena" Composition Outboard Connection with flar valve and coupling used on discharge of closets, lavatories, sinks.

	¾	1	1¼	1½	2
L. P.	$2.00	$2.75	$3.75	$5.00	$7.00
I. P.	2.00	2.50	3.50	4.50	6.50

Plate S-5200

Neptune Motor Boat Bow Lantern Bracket; hinges permit bracket to lie on deck when not in use.
Polished Brass $8.75

Plate S-2572

The "Dalia" Vitro-Adamant Stateroom Lavatory Outfit, with waste jar and N. P. waste cock. Supply Pitcher with N. P. ring and catch. Price, complete as shown and described $26.00

Plate S-750

Double Acting Brass Auto Bilge Pump, 15 inches long under spout and fitted with 5 feet of rubber hose.
No. 1—1¼" diam..$3.00
No. 2—1½" diam.. 4.50
No. 3—1¾" diam.. 24" long, with foot rest, $5.50

Plate S-4254

Basin Pump with low down spout 1½" cylinder. For use in cock hole of lavatory.
Pol. Brass....$12.00
Nickel Plated. 14.00

Plate S-709

All Brass Galley Pump, 1½ in. Cylinder, reversible handle with shut-off cock.
Polished $8.50
N. P. all over..10.50

"Sands" New "Volum" Bilge Pump is 28" long with 2" cylinder, fitted with 5' rubber hose. Capacity 1 gallon every 4 strokes.

Plate S-4300

As described..$4.50

Plate S-4301

Same as above, but also fitted with adjustable foot rest $5.00

Plate S-719

Brass Galley Pump, mounted on iron frame, polished faucet, handle reversible, outlet adjustable.
2" $8.00
2½" 13.50
For additional side outlet, add.. 1.00

Plate S-4280

New Pattern Improved All Brass Galley Pump, 2" cylinder with shut-off cock.
Pol. Brass ...$12.50
Pol. & N. P.. 14.00

Plate S-773

Rough Brass Reversible Pump for Gasoline or Oil. Special valves 2 in. cylinder, length 12 in. $10.50

Plate S-771

Brass Gasoline and Oil Pump with special valves.

Dia.	Lg.	
1½	15	$5.00
1½	18	7.00
2	24	13.00

Plate S-750-A

New Style Double-Acting Brass Bilge Pump, with foot attachment and 5-ft. discharge and suction hose with brass strainer.
No. 1—1¼" diam., 15" long $5.00
No. 2—1½" diam., 15" long $6.50
No. 3—2" diam., 24" long, $14.00

Water tight and heavy pattern "SANDS" PORT LIGHTS and DECK PLATES "Sand's Standard 100% quality at special low prices

Plate S-1000
Octagon Port Light.

Plate S-1001
Round Port Light.

Plate S-1002
Round Port Light with Heavy Frame.

Plate S-1003
Port Light with Storm Shutter.

Plate S-4765
Port Light with Sleeve.

Plate S-4770
Port Light with Screen.

Size Opening	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	14"	15"	16"	17"	18"
S-1000	$2.75	$3.00	$3.25	$4.25	$5.00	$6.00	$8.00	$14.00	.....	.....	.....	.....	.....	.....	.....	.....
S-1001	2.50	2.75	3.15	4.40	5.50	6.50	9.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
S-1002	.....	4.00	5.25	7.00	8.75	10.75	13.00	14.50	$17.00	$20.00	$23.00	$26.00	$29.00	$33.00	$37.00	$42.00
S-1003	.....	.....	.....	8.45	10.40	12.60	15.10	16.75	19.50	22.75	26.00	29.30	32.60	36.90	41.25	46.50
S-4765	.....	4.25	5.05	6.25	7.95	10.00	12.75	20.75	24.50	28.50	.....	.....	.....	.....	.....	.....
S-4770	.....	5.50	7.00	9.50	11.00	14.50	17.00	19.50	23.25	27.50	.....	35.50	.....	.....	.....	.....

Price List is for Plain Brass Port Lights.

STYLES S-4765 MADE IN SLEEVES 1" TO 4" LONG. ABOVE PRICES COVER SLEEVES UP TO 1¾" IN LENGTH; OTHER LENGTHS OF SLEEVES AT SLIGHT ADVANCE IN PRICE.
ALL SIZES 7" AND UNDER HAVE ONE CLAMPING SCREW. ALL SIZES 8" AND LARGER HAVE TWO OR MORE CLAMPING SCREWS.

POLISHED BRASS DECK PLATES, HEAVY WEIGHT GUARANTEED

PLATE S-975 PLATE S-976

Lead Pipe	Size	Iron Pipe
$0.60	¾ in.	$1.00
.70	1 in.	1.20
.80	1¼ in.	1.50
.90	1½ in.	2.00
1.20	2 in.	2.50
1.60	2½ in.	3.50
2.20	3 in.	4.50

Full Line of ventilators, gasoline and bilge pumps, horns, whistles, strainers and outboard connections shown in New Catalog "R." Ready in near future, free upon request.

A. B. SANDS & SON COMPANY

Largest Manufacturers in the World **MARINE PLUMBING SPECIALISTS** 22-24 Vesey St., New York, U. S. A.

1849—"SIXTY-SIX YEARS OF QUALITY"—1915

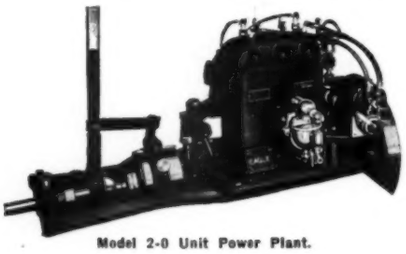
THE MIGHTY EAGLE

Universally conceded to be the most efficient and best line of Engines on the market

"EAGLE" ENGINES are the result of sixteen years of careful planning and careful building, they are the product of the best organized manufacturing plant in the world; there is more financial responsibility back of "EAGLE" Engines than all other make of two cycle engines combined. If you are ambitious to build up a permanent Engine business lose no time in securing an "EAGLE" agency.

Sensational Performances

The sensational performances of the entire line of "EAGLE" High Speed Models during 1914-1915 is without a parallel. If you want a Winner buy an "EAGLE," as it takes an "EAGLE" to beat an "EAGLE."



Model 2-0 Unit Power Plant.

MOTOR BOATING

The Model 2 "O" stock model as illustrated above holds the world's record for speed in its class. It is equally as efficient in pleasure and working boats. Its range of work is not approached by any two cycle Engine. Its price is exceptionally reasonable. It has that Dollar for Dollar value. Each and every part used in the construction of an "EAGLE" Engine is made to our order, and special formula. No stock parts are good enough for our Engines. Repair parts can always be had for any "EAGLE" Engine made during the past sixteen years (a record). Our Medium Speed and Heavy Duty line is exceptionally complete.

Catalogues mailed upon request.

THE STANDARD CO.

TORRINGTON, CONN.

Testimonial Letters

The Standard Co., Torrington, Conn.
Gentlemen: The Model K 3½ H.P. engine No. 5291 shipped us some months ago is doing all you claim for it and then some. We sold it to one of our fishermen, he has been using it constantly, towing two large skiff boats and there is nothing in this water that gives any more satisfaction. You can hardly improve on this special model for the money.
Homosassa, Fla., 10-28-15. Very truly yours, **THE WILLIAMS FISH CO.**

The Standard Co., Torrington, Conn.
Gentlemen: I have owned and operated one of your Model 2K 7 H.P. Marine Engines for the past year. With my 20 in. x 4 ft. Semi-speed hull and this motor I had an ideal combination both for comfort and economy.
I had the fastest boat on these waters for her H.P. and I think her builder, Mr. F. B. Swenson, Covington, Ky., will favor you with more than one order this coming season.
Cincinnati, Ohio, 1-20-15. Very truly yours, **MR. F. L. CROSS.**

The Standard Co., Torrington, Conn.
Gentlemen: I received the motor with the corresponding accessories and after installing it in the launch I tried it with satisfactory results. It could not work any better than it does. Those who saw it doubt it had 7 H.P., as the size does not seem in proportion with the power, but I am convinced that it develops 7 H.P. and the owner of the engine is satisfied with it, and besides, they do not take into consideration that it is not only the size, but the number of revolutions that counts. They only say that a 3 H.P. engine is large, but do not understand that such an engine works only 300 revolutions per minute and this 900 to 1000 per minute. I have gone out with it and the owner five or six times and he tells me it consumes little gasoline.
Menzanillo, Cuba, 12-25-14. Very truly yours, **MR. HELIODORO GUERRA.**

The Standard Co., Torrington, Conn.
Gentlemen: The engine purchased from you last spring has proven to be all that you claim. It drove my 19 ft. runabout last year with a 14 by 18 Hyde 3 blade, 8 M.P.H., which I am proud of. The engine raced so much that this year I have put on a 14 by 22 three blade Hyde. That single model "0" is one corker.
39 Marshall St., Medford, Mass., 5-20-14. Yours truly, **MR. E. S. BENJAMIN.**

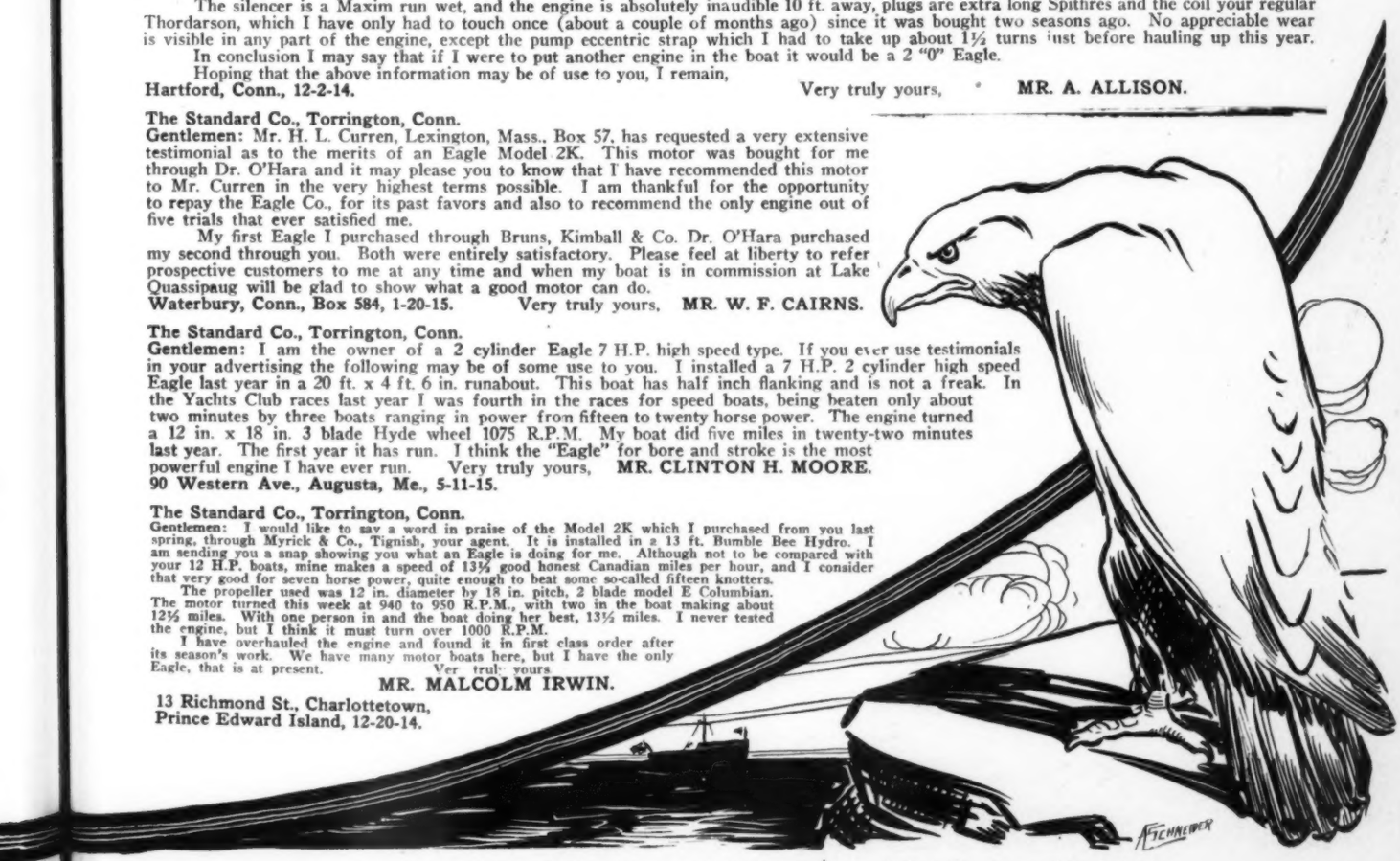
The Standard Co., Torrington, Conn.
Gentlemen: Your Model 2-0 12 H.P. engine is giving perfect satisfaction. It is one of the most perfect engines I have ever operated. I don't know of any improvment you can make. It is just perfect in every way. There isn't any speed engine on the market that can produce the power that your engine will. I have one of the fastest speed boats in the world with one of your 12 H.P. 2-0 engines installed in it. I think you people claim that the "Flying Eagle" is the fastest, but you are entirely mistaken. I have written you people I had a very fast boat. Before I won the Cup at Ocracoke Fourth of July, I was also second winner at New Bern in a Handicap Race. One of the "Flying Eagle" boats was in that race. I outran her eight minutes, so you see that was not any comparison. My boat is 18 feet long, 3 feet beam. I am sending a postcard of boat.
If I can be of any service to you people, I will be glad to serve you.
Atlantic, N. C., 10-29-15. Very truly yours, **MR. J. J. HILL, JR.**

The Standard Co., Torrington, Conn.
Gentlemen: I received your letter on the 28th, many thanks for the information re. grease.
My boat is a Defoe model 19 x 4 ft. 9 in. x about 18 in.-20 in. draft, built of ½ in. cypress with oak ribs, and five years old. My speed is 11¼ M.P.H. at 1000 R.P.M. with a 3 blade 12 in. x 18 in. Hyde wheel, and last time I put a counter on the engine she was doing 1007 R.P.M. A 10 gallon gas tank is carried in the bow, and the engine is almost amidships.
The silencer is a Maxim run wet, and the engine is absolutely inaudible 10 ft. away, plugs are extra long Spitfires and the coil your regular Thordarson, which I have only had to touch once (about a couple of months ago) since it was bought two seasons ago. No appreciable wear is visible in any part of the engine, except the pump eccentric strap which I had to take up about 1½ turns just before hauling up this year.
In conclusion I may say that if I were to put another engine in the boat it would be a 2 "0" Eagle.
Hoping that the above information may be of use to you, I remain,
Hartford, Conn., 12-2-14. Very truly yours, **MR. A. ALLISON.**

The Standard Co., Torrington, Conn.
Gentlemen: Mr. H. L. Curren, Lexington, Mass., Box 57, has requested a very extensive testimonial as to the merits of an Eagle Model 2K. This motor was bought for me through Dr. O'Hara and it may please you to know that I have recommended this motor to Mr. Curren in the very highest terms possible. I am thankful for the opportunity to repay the Eagle Co., for its past favors and also to recommend the only engine out of five trials that ever satisfied me.
My first Eagle I purchased through Bruns, Kimball & Co. Dr. O'Hara purchased my second through you. Both were entirely satisfactory. Please feel at liberty to refer prospective customers to me at any time and when my boat is in commission at Lake Quassipaug will be glad to show what a good motor can do.
Waterbury, Conn., Box 584, 1-20-15. Very truly yours, **MR. W. F. CAIRNS.**

The Standard Co., Torrington, Conn.
Gentlemen: I am the owner of a 2 cylinder Eagle 7 H.P. high speed type. If you ever use testimonials in your advertising the following may be of some use to you. I installed a 7 H.P. 2 cylinder high speed Eagle last year in a 20 ft. x 4 ft. 6 in. runabout. This boat has half inch flanking and is not a freak. In the Yachts Club races last year I was fourth in the races for speed boats, being beaten only about two minutes by three boats ranging in power from fifteen to twenty horse power. The engine turned a 12 in. x 18 in. 3 blade Hyde wheel 1075 R.P.M. My boat did five miles in twenty-two minutes last year. The first year it has run. I think the "Eagle" for bore and stroke is the most powerful engine I have ever run. Very truly yours, **MR. CLINTON H. MOORE.**
90 Western Ave., Augusta, Me., 5-11-15.

The Standard Co., Torrington, Conn.
Gentlemen: I would like to say a word in praise of the Model 2K which I purchased from you last spring, through Myrick & Co., Tignish, your agent. It is installed in a 13 ft. Bumble Bee Hydro. I am sending you a snap showing you what an Eagle is doing for me. Although not to be compared with your 12 H.P. boats, mine makes a speed of 13½ good honest Canadian miles per hour, and I consider that very good for seven horse power, quite enough to beat some so-called fifteen knotters.
The propeller used was 12 in. diameter by 18 in. pitch, 2 blade model E Columbian. The motor turned this week at 940 to 950 R.P.M., with two in the boat making about 12½ miles. With one person in and the boat doing her best, 13½ miles. I never tested the engine, but I think it must turn over 1000 R.P.M.
I have overhauled the engine and found it in first class order after its season's work. We have many motor boats here, but I have the only Eagle, that is at present. Very truly yours
MR. MALCOLM IRWIN.
13 Richmond St., Charlottetown, Prince Edward Island, 12-20-14.



THE JOHNSON MARINE REVERSE GEAR

Embodies the A.B.C. of High Grade Reverse Gear Construction

A for ALLOY STEEL: 3½% Nickel Steel, used in all GEARS and SHAFTING properly hardened and heat treated.

B for BALL BEARINGS: DOUBLE ROW BALL BEARINGS of an approved type on the main drive shafts in each end of the case, the propeller end being a DOUBLE THRUST BEARING.

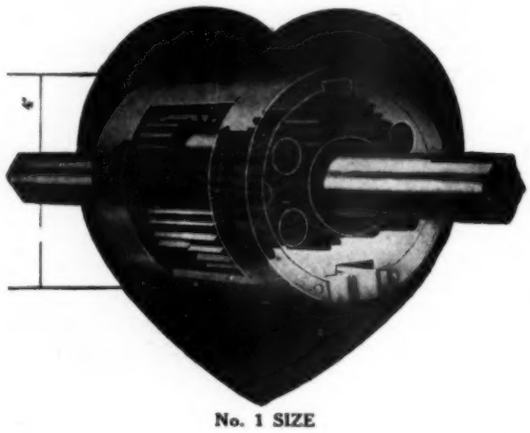
C for CLUTCHES:

THE JOHNSON FRICTION CLUTCH

in a DOUBLE TYPE is THE HEART of THE NEW JOHNSON ALLOY STEEL REVERSE GEAR. Investigate these features, new to REVERSE GEAR construction, which we have successfully applied and used, and then use your own judgment in selecting the Gear for your own boat for the coming season.

This is the interior of the Alloy Steel Gear that you have seen Advertised in Motor Boating the past six months.

Showing construction



No. 1 SIZE

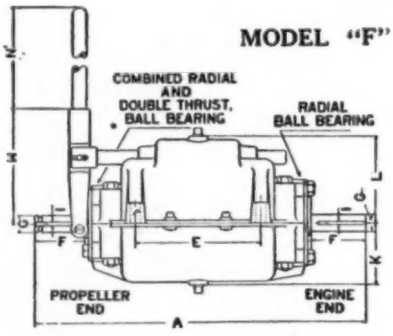
Compare carefully its construction with any other make on the market before placing your order.

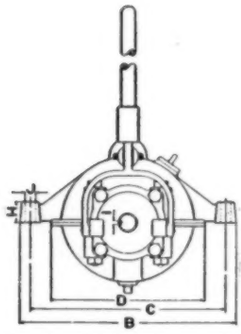
Exterior

MEMBER

Write for Catalog

MODEL "F"





Write for Catalog

Gear No.	H.P. Per 100 R.P.M. Max.	H.P. for High Speed Motors Max.	H.P. for Medium Speed Motors Max.	WEIGHT		List Price for Cast Iron Case	List Price for Aluminum Case	DIMENSIONS IN INCHES											
				Cast Iron Case	Aluminum Case			A	B	C	D	E	F	G	H	I	J	K	L	M	N
0	½	5	3	23	19	$24.00	$36.00	12¾	7¾	7	5½	4½	2	⅝	¾	⅛		2¼	3½	4½	7½
1	1	10	5	40	32	36.00	48.00	15⅞	9⅞	8¾	6⅝	4½	2¾	⅞	1	¼		2½	4½	5⅝	13½
*1 "A"	1½	20	10	70	50	42.00	54.00	19½	10½	9	7½	6½	3½	1	1⅛	¼		3	4½	5⅞	15½
2	3	30	15	93	75	48.00	60.00	21½	11⅝	9¾	8⅝	6½	4¼	1⅛	1⅛	¼		3½	5⅝	6⅝	15½
*3	5	50	25	210	160	72.00	90.00	27½	16½	14¼	11½	8¾	5¼	1½	1¾	½		5¼	7⅛	9¼	27½

***Delivery date on request.**

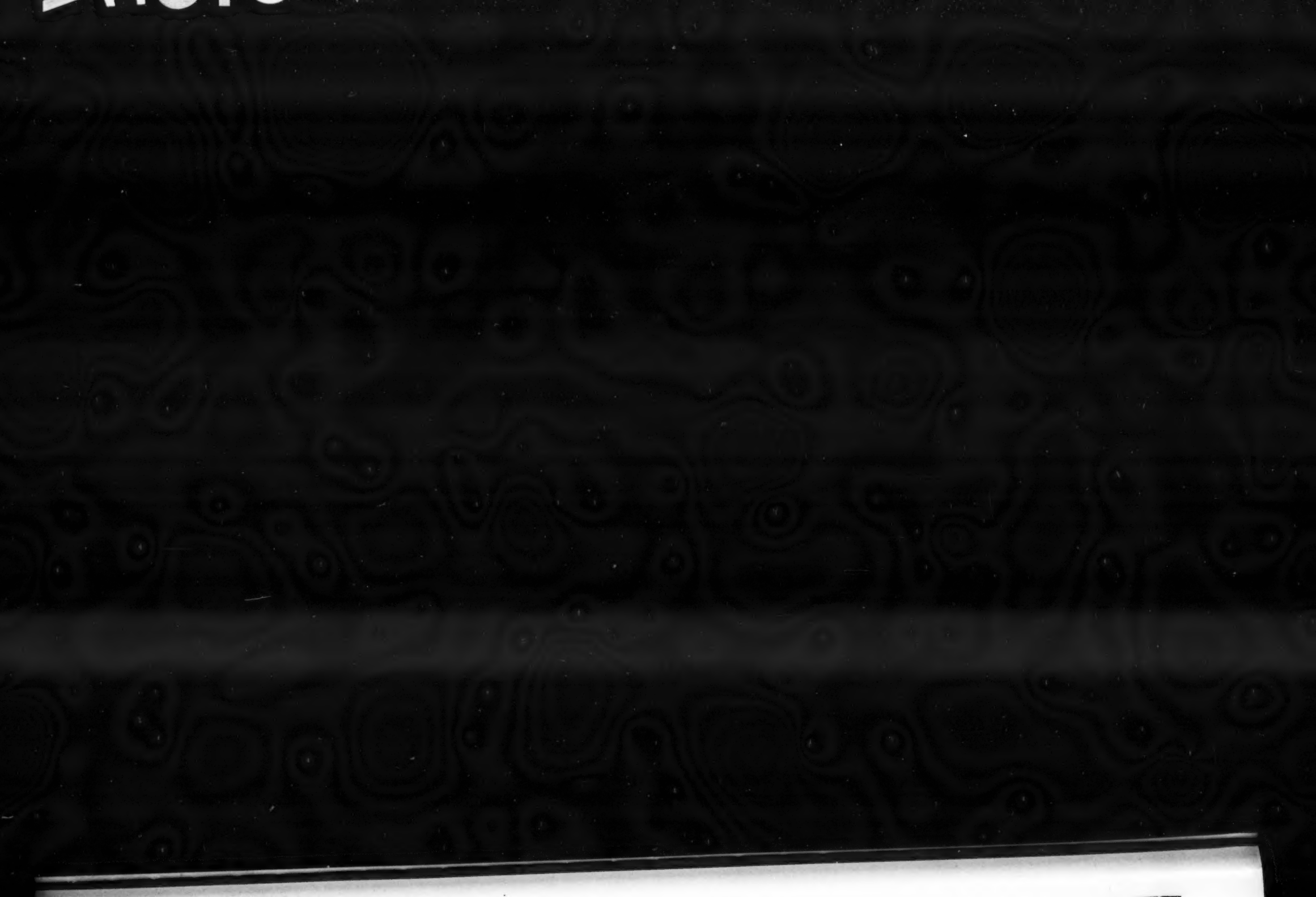
A Comprehensive Test just made of three of the five sizes of Gears listed above, by one of the large Marine Motor Manufacturers, gave the following results. For brevity sake we have only shown part of this test, but it will outline to you, Mr. Purchaser, that Johnson Gears are Manufactured with a factor of safety equal to double their rated capacity, and more. However, they are not guaranteed for more than their rated capacity above.

Gear No.	Clutch Carried Without Slipping	Clutch Slipped	Carried on Reverse		R.P.M.		H.P. Delivered	
	Forward	Forward	Without Failure	Failed	Motor	Dyn.	At Actual Speed	Per 100 R. P. M.
No. 0	65 lbs.	77.50 lbs.			895	895	11.10	1.24
					890	885	13.00	1.47
No. 1	140 lbs.				880	880	23.5	2.67
No. 2	315 lbs.				850	850	50.97	6.00

SEE OUR EXHIBIT AT THE COMING NEW YORK MOTOR BOAT SHOW

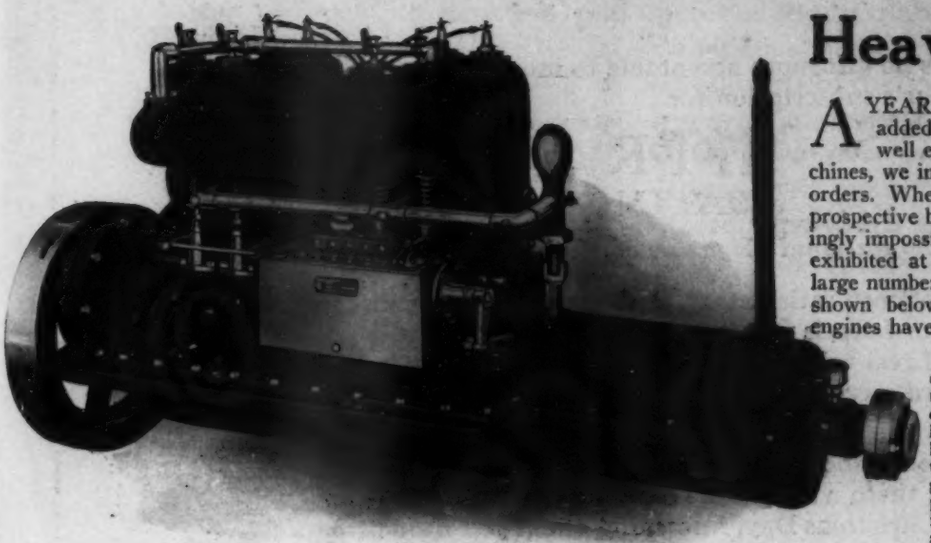
THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

MOTOR'S *Classified Advertising contains many bargains and opportunities—see pages* 129-130.



PEERLESS

"The Engine That Makes Good"



40-50 H.P. MEDIUM AND HEAVY DUTY TYPE

Heavy Duty Models

A YEAR ago 2 heavy duty Peerless engines were added to our line. Although our factory was well equipped for the production of these machines, we immediately found ourselves flooded with orders. When this engine was first announced, many prospective buyers were skeptical owing to the seemingly impossible price; however, after they had been exhibited at the shows, all doubt was removed. A large number of letters similar to Mr. Alston's letter shown below should assure the reader that these engines have made good in every sense of the word.

We wish to call particular attention to the 2 cyl. 20-24-H.P. model. This machine is adapted to meet the hardest kind of service such as is encountered in fishing boats, tugs, etc., where hard every-day service is required. Our popular price on this model makes it possible for the fisherman to buy a high class 4 cycle engine for less money than he would have to pay for any standard 2 cycle engine. The saving in fuel will soon pay for the entire outfit and, in addition, this engine has all the advantages of the 4 cycle type, such as speed, control, reliability, etc.

Tuscaloosa, Ala., Sept. 25, 1915.

The Peerless Marine Motor Co.,
No. 10 Lock St., Buffalo, N. Y.

Gentlemen:—

Your 40 to 50 H.P., 4-cylinder marine motor recently installed in my 40-foot cruiser "Mary Frances," has been so entirely satisfactory that I wish to say a few words of commendation.

This motor is exceedingly quiet, vibrationless and very economical. At a speed of six miles when the hatch over the engine is closed, you cannot realize that there is an engine in the boat, and even at 11 miles per hour she glides along as smoothly as a lizard. She has required little or no attention. Simply oil and gasoline her and she seems to take care of herself beautifully. Very truly,

S. F. ALSTON.

"MARY FRANCES," Owned by S. F. Alston

New Model

Each year since the Peerless engine has been on the market has seen the bringing out of a new model in addition to the popular Peerless line. This model is designed to meet the growing demand for a suitable power plant for certain types of boats. This year, owing to the great demand for a desirable cruising power plant, we have added a 25 H.P. medium duty engine built especially for cruising purposes. The design of this is years in advance of any engine now on the market. Every moving part, including the flywheel, is enclosed. It is absolutely quiet in operation. All gears have been eliminated, cam shaft, generator, etc., being driven by silent chain drives. This engine is also equipped with a 2-unit electric starting and lighting system built in. In keeping with the Peerless policy, this new engine will be sold at a popular price. Watch our advertisement in the January issue of this magazine for an illustration and full description.

Standard Models

The standard line of Peerless engines is too well-known to need a detailed description. These engines have come to the front in popularity so rapidly during the past few seasons that every prospective buyer of a marine power plant should give serious consideration to the Peerless. We invite the most searching investigation and comparison with other engines in price, power and reliability. The further you will investigate, the better will be our chance in selling you a Peerless engine. Value is the keynote of Peerless success. Built with the best of materials, features of design and methods of construction which every motor expert concedes to be most desirable, we have been able to produce an engine of high quality at a price which is the despair of our competitors. The demand for a popular priced engine of the Peerless type is so great that we can produce these engines in quantities and to be able to effect many savings in the manufacture that reduces the cost, but does not affect the quality.

There will be no radical changes in the standard engine for the coming season. A number of refinements suggested by actual experience will be added. These refinements will make the Peerless even more reliable and popular.

1916 Prices

4 cyl.,	40-50	H.P.	$625.00	2 cyl., 20-24 H.P.	$395.00
4 cyl.,	25-35	H.P.	450.00	2 cyl., 12-16 H.P.	290.00
4 cyl.,	16-20	H.P.	375.00	2 cyl., 8-10 H.P.	265.00

Peerless Marine Motor Co.

BUFFALO, N. Y., U. S. A.

There is no gift more acceptable to motor boat owners than a year's subscription for

MoToR BoATinG

The National Magazine of Motor-Boating

It is the most satisfactory Christmas present you can give to *your* friends who own motor boats, for it will not only be of real value to them but will remind them of your regard every month for a whole year.

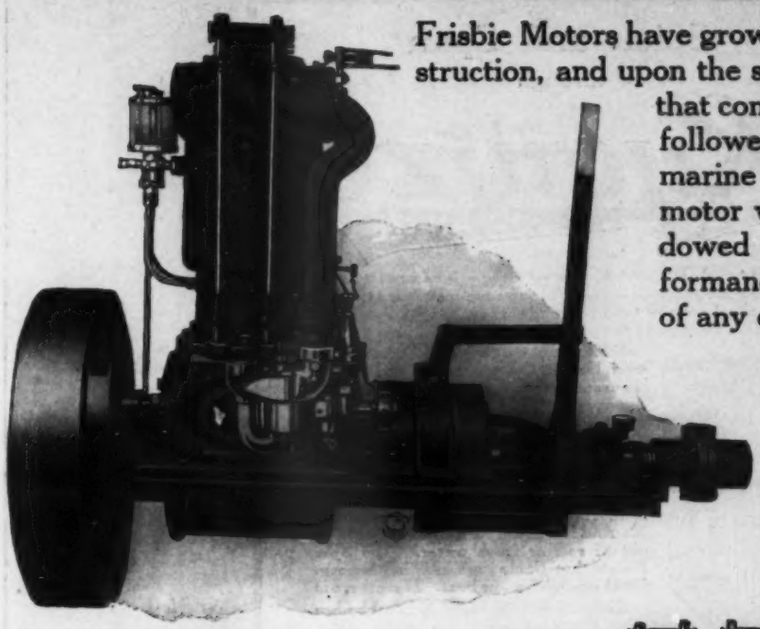
Send us the names and addresses of those whom you wish to remember, with your check to cover, and we shall send them a handsome card, mailed so as to reach them on Christmas Day, informing them you have given them MoToR BoATinG for one year as a Christmas gift. The cost of this service is the regular price of $1.00 per year per subscription.

Many people have found this a most happy solution of their problem: "What shall I give?" The fact that MoToR BoATinG is the handsomest and most attractive motor-boating magazine, as well as the most authoritative, makes it an ideal gift.

Send your order to

Christmas Subscription Bureau, MoToR BoATinG
119 WEST 40th ST., NEW YORK CITY

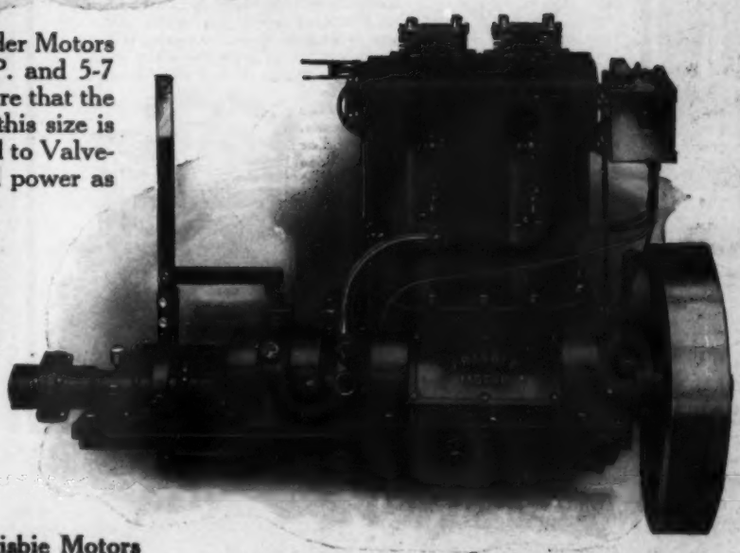
The Famous Valve-in-Head Marine Motors



Frisbie Motors have grown famous on their Valve-in-Head construction, and upon the superior ability inevitably produced by that construction. We are the most consistent followers of the Valve-in-Head principle in the marine industry, using this design in every motor we ever produced. We have thus endowed all our motors with a quality of performance which is seldom equalled in motors of any other type.

It takes skill to build a good valve-in-head motor, but all experts concede 15% to 20% greater efficiency and all owners know that it means more power, better economy, greater durability and more satisfaction in every particular.

Frisbie Single Cylinder Motors are built in 3-5 H.P. and 5-7 H.P. sizes. We figure that the user of a motor of this size is just as much entitled to Valve-in-Head quality and power as the owners of bigger boats. Our theory is proved correct by the number of these Single Cylinder Frisbie Motors we sell.



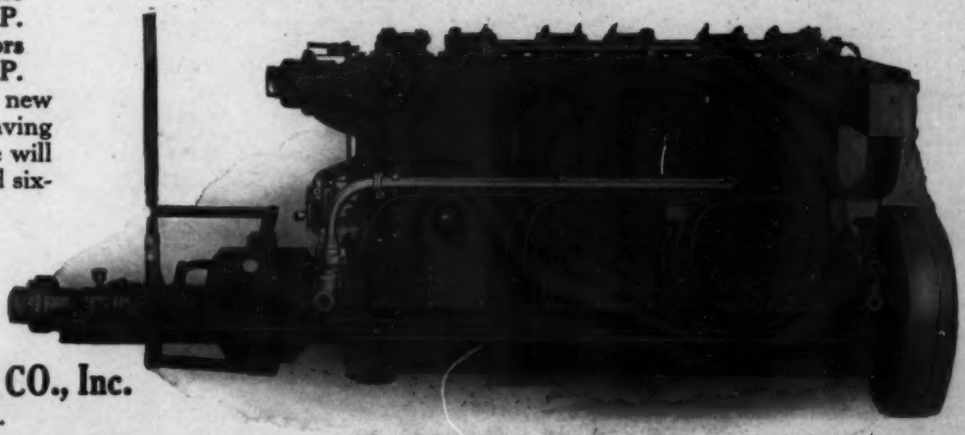
Frisbie Double Cylinder Motors are built in 6-10 H. P. and 12-16 H. P. sizes. There is no need for more than two cylinders in either of these models as the Frisbie Valve-in-Head Motor runs so smoothly. Cylinders are cast in block with integral manifolds. Speed range, 150 to 600 R.P.M. for the smaller and 150 to 550 R.P.M. for the larger motor.

Three Cylinder Frisbie Motors
12-18 H.P.
18-25 H.P.
Four Cylinder Frisbie Motors
20-30 H.P. 30-40 H.P.
Six Cylinder Frisbie Motors
35-50 H.P. 50-75 H.P.

We will soon announce a new series of Frisbie Motors, having 7 x 9" bore and stroke. These will be built in two, three, four and six-cylinder models.

Write today for the latest illustrated Frisbie catalog.

Attractive Proposition for Dealers



THE FRISBIE MOTOR CO., Inc.

Middletown, Conn.

Export Department, 95 William Street, New York

Spick and Span
through
Kyanize
KY-AN-IZE

Fitting out! Did ever work give more pleasure. The good boat that has motored us over blue seas under sunny skies. That helped put the tan upon our cheeks and the sparkle in our eyes. Nothing is too good for *her*.

KYANIZE Waterproof Spar Finish and White Enamel will make several thousand motor boats like new and keep them spick and span throughout the season -- because

Kyanize Spar Finish is the hard, the quality varnish that will never crack, soften or check under any attack of climate and weather conditions. The sun cannot blister, or rain, heat and cold affect it. And it will not turn color either in or out of salt or fresh water. The Spar Finish that Uncle Sam uses in his navy. Good enough for our boat. Then there is

Kyanize White Enamel to make her sides gleam white and keep white under sunny or cloudy skies. Kyanize White Enamel is different from the white paint you've been using. It will wear longer, look better, is whiter and will add more speed to your boat. This is the Enamel used on the high grade boats. Best for all white work on wood or metal. Leaves a durable, high gloss finish, easily cleaned. It will not crack, chip or peel.

And we refund the money for the empty can if it does not do all we claim.

If there is no Kyanize Agent in your town don't take something "just as good." Write us direct.

BOSTON VARNISH CO., Everett Station, Boston, U.S.A.

Chicago
Warehouse and Office
519 West Twelfth St.

San Francisco
Warehouse and Office
311 California St.

Motor Yacht "Paragon"—Powered with two 250 H. P. Winton Engines

The Quality Mark

Quality in an engine is not the enamel and polish of its exterior. It starts with the first operation—not the finishing touch. It is built in. That explains Winton operating qualities—Winton staying qualities. Designed and constructed right, they stay right.

Vibration does not shake them to pieces because vibration has been eliminated. The moving parts do not become noisy because they are designed and constructed to operate without noise. Uninterrupted and continuously satisfactory service is provided for in every piece of the engine.

Fine workmanship from start to finish is the buffer between you and engine troubles. Winton manufacture assures this. The Winton name guarantees it.

Winton Engines are manufactured in sizes ranging from 50 to 200 H.P.

For particulars address

Winton Engine Works

2116 West 106th Street

Cleveland, Ohio

That Feeling of Security

When it comes to selecting a reverse gear, "good enough" won't do. There is too much at stake to run any risk whatever.

You want a reverse gear on your engine that will respond to every demand put upon it and that you are confident will *never* fail you in an emergency.

Remember, you are putting your valuable property, if not life itself, up to the dependability of a mechanical device, and design—material—workmanship and the company behind it are things you cannot in justice to yourself overlook.

Baldridge Reverse Gear

With a Baldridge equipped power plant, you can always have that confident feeling of security, because years of actual service on thousands of motors have fully demonstrated its ability to make good in every emergency.

The Gear with the unbroken main shaft

In the first place, the Baldridge has only *one* main shaft which extends through the gear from bearing to bearing—it won't sag or bind, and perfect alignment is assured.

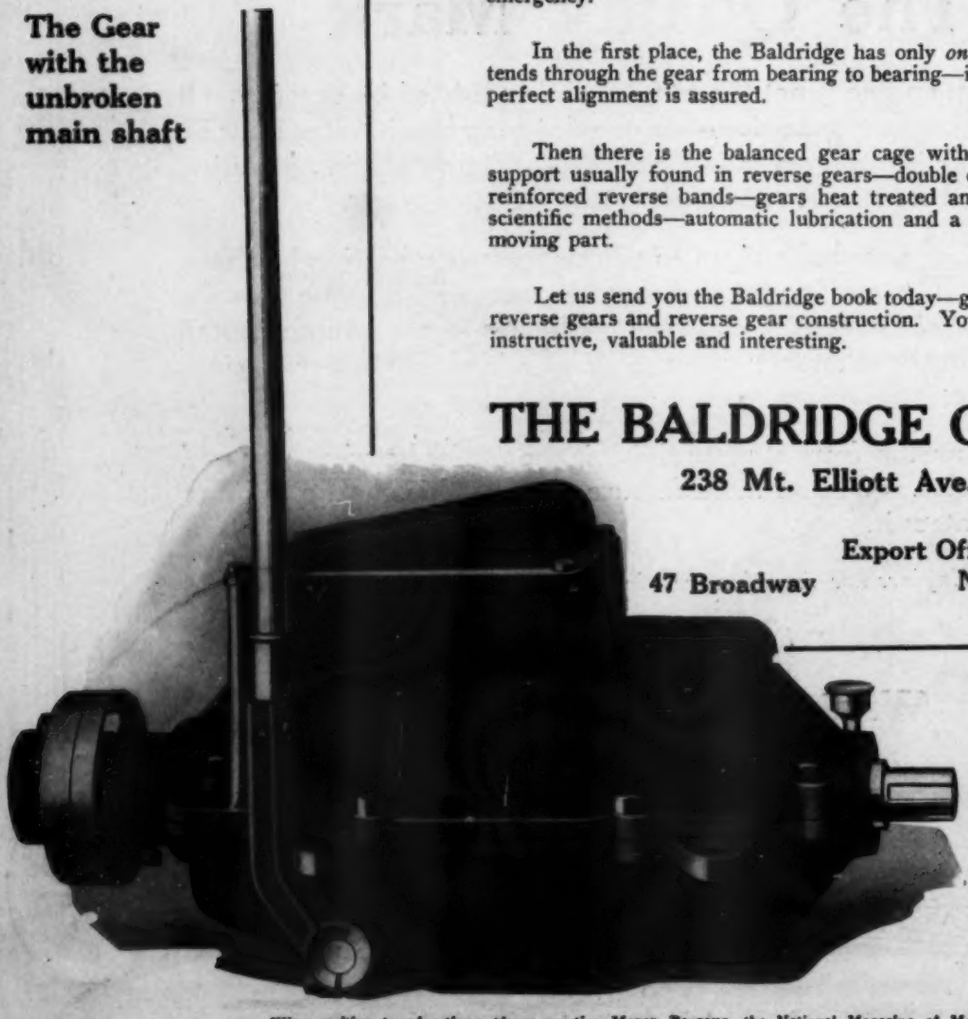
Then there is the balanced gear cage with more than double the support usually found in reverse gears—double expansion clutches with reinforced reverse bands—gears heat treated and hardened by modern scientific methods—automatic lubrication and a housing covering every moving part.

Let us send you the Baldridge book today—get the inside facts about reverse gears and reverse gear construction. You'll find the information instructive, valuable and interesting.

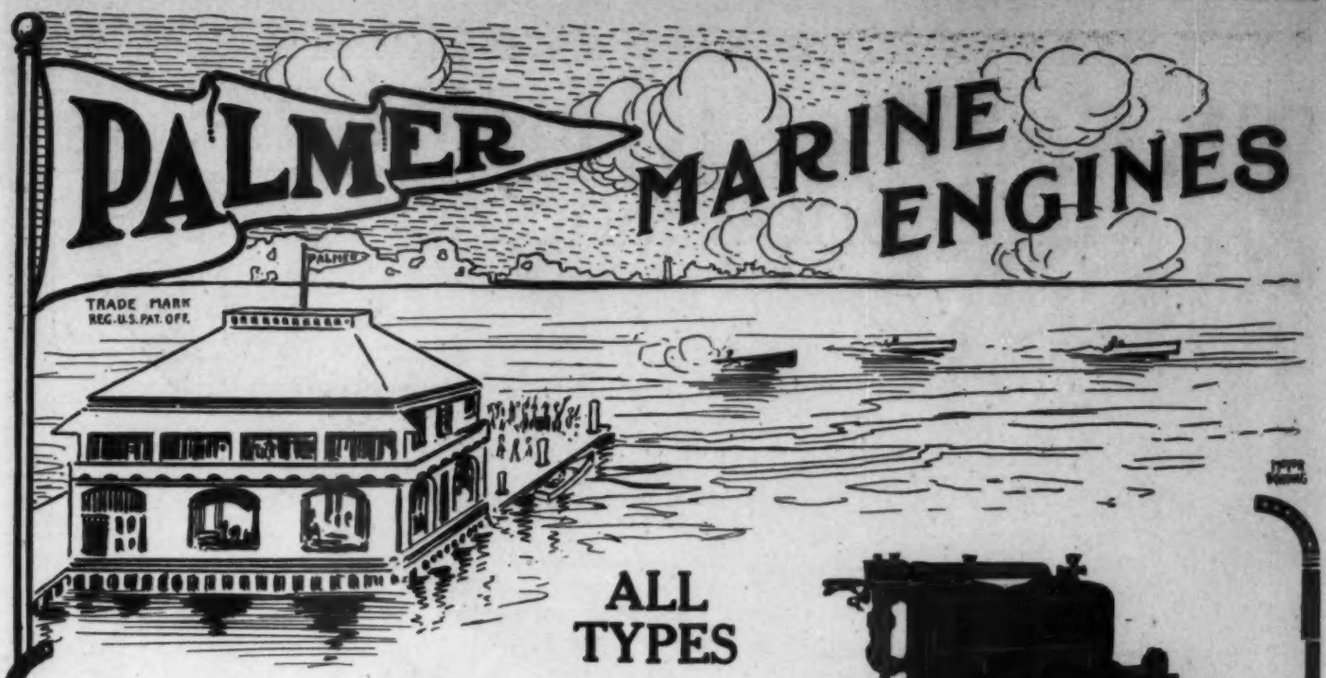
THE BALDRIDGE GEAR CO.

238 Mt. Elliott Ave., Detroit, Mich.

Export Office
47 Broadway New York, U. S. A.



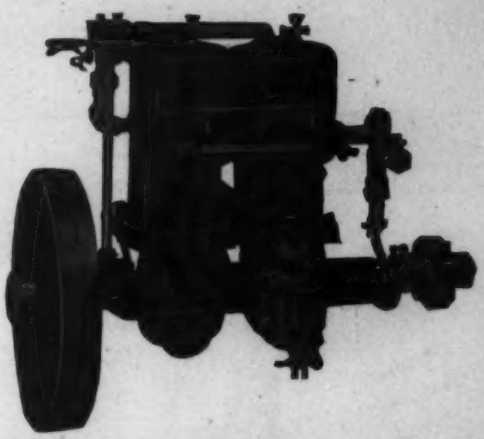
The Baldridge Reverse Gear is standard equipment on a large number of the leading American and European marine engines. When you select an engine, ask about the Baldridge. If it is not regularly furnished with the engine you buy, ask to have it included. You can have it, if you insist.



ALL TYPES

FOR

Runabouts, Cruisers, Work Boats



35 Models from 2 to 50 H. P.
Each a Leader in its Field.

Palmer Engines had established a standard of excellent service and reliability years before many of the present motor builders were out of grammar school. Early history of marine engine development is full of Palmer achievements, many features now considered standard having been originated or first developed to a practical solution in our plant.

Palmer Engines are pioneers and leaders in every field. We built the first successful two-cycle engine made in New England. We have been building four-cycle motors for sixteen years. Every Palmer engine we have produced has been so good that we have never had to discontinue a model or a general type, merely adding improvements from time to time to keep our standard models a little ahead of the others.

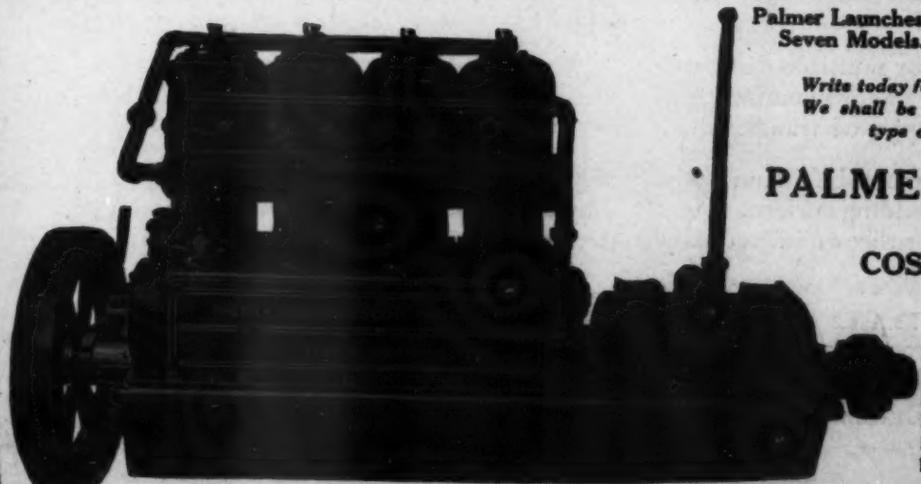
With a successful manufacturing experience dating from the earliest days of the gasoline motor industry—with a big completely equipped plant built exclusively for marine engine work—with a line covering all popular types and sizes—it is only natural that Palmer Engines should maintain their lead in popularity and value over all competitors. Get a Palmer if you want the utmost in service, reliability, economy and durability, no matter what size or type of boat you have.

Two-Cycle, Two-Port Type:
Three Models. Single-Cylinder.
Make and Break Ignition.

Two-Cycle, Three-Port Type:
Fourteen Models. One, Two and Three Cylinders.
Make and Break, or Jump Spark Ignition.

Four-Cycle Type:
Eighteen Models. One, Two, Three and Four Cylinders.
Jump Spark or Make and Break Ignition.
Light Duty, Medium Duty, Heavy Duty.

Palmer Launches and Cruisers:
Seven Models. Sixteen to 42 Feet.



Write today for complete illustrated catalog. We shall be glad to recommend the best type of engine for your boat.

PALMER BROTHERS

Dept. M

COS COB, CONN.

BRANCH OFFICES:

NEW YORK—31 E. 21st St.
PHILADELPHIA—40 No. 6th St.
BOSTON—77 Haverhill St.
PROVIDENCE, R. I.—123 Dyer St.
PORTLAND, ME.—Portland Pier
BALTIMORE, MD.—514 E. Pratt St.

Hundreds of years ago the Indians used the Paragon Multiple Disc Principle

By distributing his weight evenly over the very large bearing surface of a snow shoe, the Indian traveled over drifts that would bury you or me with our ordinary shoes.

In the same way the Paragon Multiple Disc type of Reverse Gear distributes the load of the engine evenly over a great many inches of friction surface.

This is obtained by multiple discs and is recognized by all motor manufacturers as the one perfect type of transmission.

These smoothly ground friction discs have a remarkable holding surface. They enable the lever to be thrown in gradually with no sudden load on any of the parts. They give the Paragon a factor of safety of 100 per cent.

Special grinding machines give a glass-like surface to its friction plates. Automatic machinery makes parts in large quantities. These parts are inter-changeable.

Paragon parts are accurate. They are ground to size to within 1/1000 of an inch.

Paragon Gears are as near wear-proof as years of skill can make them. When you buy a new motor insist that it be Paragon Geared. Send for illustrated booklet.

PARAGON GEAR WORKS

EVANS STAMPING AND PLATING CO.

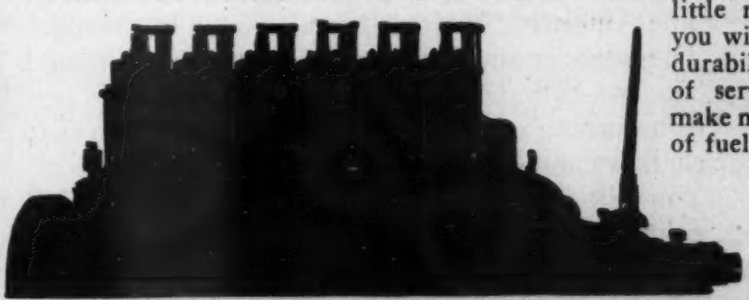
Cushman Street - - Taunton, Mass.

RALACO THE SILENT SIMPLIFIED ENGINE

For big boats, for cruisers of quality, for hard working commercial boats, there is no other power plant so suitable as the Ralaco. For reliability and economy it is absolutely in a class by itself, supreme in the big motor field. Out among the owners and users of marine engines it is a source of honest pride to be able to state that there is a Ralaco in one's boat.

In economy of fuel and maintenance Ralaco Engines have no equal. They are guaranteed to use not more than 1/10 of a gallon of gasoline per horsepower hour. A 10 H.P. Ralaco will run under full load for one hour on one gallon. A 20 H.P. Ralaco will run one hour on two gallons. These results are guaranteed; if the engine doesn't make good on the guarantee, we will. As a matter of fact, most Ralacos operate for years on less than the guaranteed fuel consumption.

You will find great satisfaction if you install a Ralaco in your boat. It is quiet, clean, smooth running engine, developing more than enough power to do its rated work without crowding the engine. Although you may have to pay a little more for a Ralaco, you will save money on its durability and great length of service, and you will make money on its economy of fuel and maintenance.



The Six Cylinder 7 x 9" Ralaco 75 H. P.

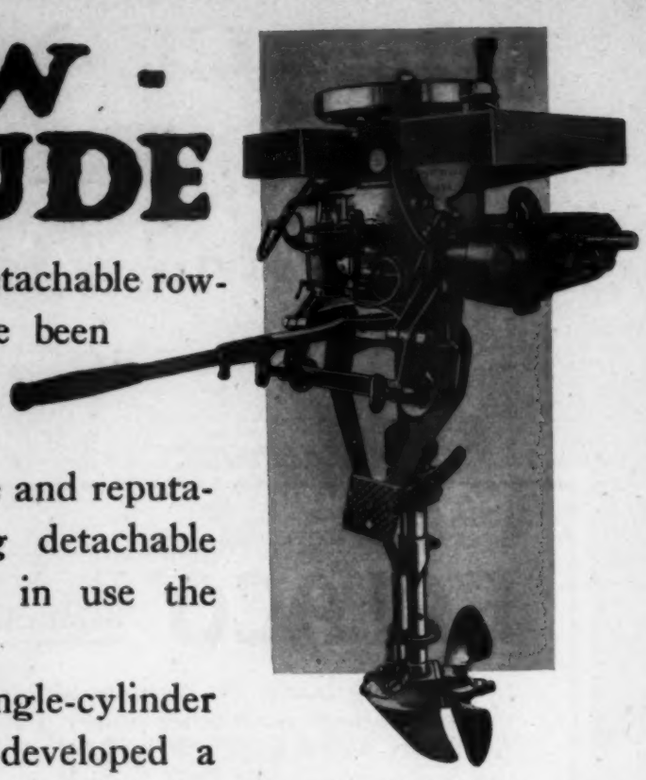
1 to 75 H. P.
Four Cycle Heavy Duty Type

Write to-day for the complete Ralaco catalog

THE S. M. JONES COMPANY,
Main Office and Factory: 616 Segur Avenue, Toledo, Ohio.

Representatives: POWER BOAT ENGINEERING COMPANY, 136 Liberty St., New York, N. Y.
A. W. LePage Gasoline Engine & Supply Co., Vancouver, B. C.
Geo. W. McNear, Cambria St., Boston.

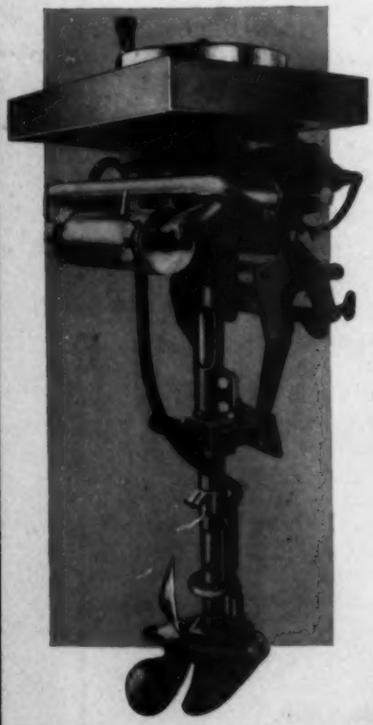
· A New · EVINRUDE



HERE it is at last—the detachable rowboat motor you have been waiting for! *A two-cylinder, opposed four-cycle Evinrude.*

You know the Evinrude name and reputation—first for years among detachable rowboat motors—thousands in use the world over.

Starting with the finest of single-cylinder rowboat motors we have developed a



Two Cylinder Opposed Motor

along the same lines. More power—more speed—and now practically vibrationless because of the opposed cylinders.

The Built-in Magneto, one of the popular features of last year's model, is retained in an improved form.

The Automatic Reverse has also been improved.

The Silencer and Lubricating System are retained.

The two-cylinder motor starts very easily and a new form of mounting enables it to be tilted inboard so as to clear shallows and obstructions.

You will want full particulars of this new 4 H.P. two-cylinder, four-cycle Evinrude. You will want to know of the improvements made in the single-cylinder Evinrude. And you will be interested in a new line of two-cylinder *inboard* motors for canoes which will be a feature of the Evinrude 1916 line.

Write today for full particulars of Evinrude detachable rowboat and canoe motors--single and two-cylinder--outboard and inboard.

EVINRUDE MOTOR COMPANY

305 Evinrude Block **MILWAUKEE, WIS., U. S. A.**

LEECE-NEVILLE
Electric
Starting *and* Lighting Systems

Their Record in the Marine Field

1912 — Experiment, Development, Testing.

1913 { A good idea direct-connected to apparatus that made good.

1914 { With improved construction, leading engine and boat builders begin to adopt Leece-Neville as standard equipment.

1915 { Owner demand very strong. More builders adopt as standard. Systems now too practical and low in price to be considered a luxury.

1916—A Necessity

THE customer buys SERVICE. He wants and is willing to pay for it. The boat or engine giving the fullest measure of satisfactory service will get the order—no doubt about it. Your experience has proved this—so has ours.

Leece-Neville Electric Starting and Lighting Systems are a NECESSITY to you engine and boat builders because they HELP YOU MAKE SALES.

Actual service, dependable and satisfactory, year in and year out, "talks quality" more effectively and more to the point than pages of advertising and volumes of printed matter.

In our new factory we have ample manufacturing facilities. We want to demonstrate Leece-Neville quality to the makers of quality boats and engines. Write us for full information.

THE LEECE-NEVILLE COMPANY

CLEVELAND, OHIO

709

SETTING THE PACE

FOR SEVENTY-FIVE YEARS this house has followed the "boating game" in all of its important phases---with an eye not only to our own profit but to the advancement and upbuilding of the sport as well. If we have kept our eyes open during that long apprenticeship, the practical experience which we have gained should have a distinct value for every boat-man.

¶We believe that Chicago is the logical distributing point for the Great Middle West,—that **Chicago is in truth, The Great Central Market**—and based on the geographical advantage of our location we are trying to build up a

MARINE SUPPLIES

distributing organization which shall be such an efficient combination of Brains, Experience, Adequate Capital, Determination and Sporting Spirit, that no man who follows the water either for pleasure or for profit, can have any inducement to deal elsewhere.

¶We are not super-human,—with the best will in the world we sometimes mix our signals and make mistakes. But when we do, we are on the job to correct them and prevent their recurrence. We **don't** carry in stock **everything ever used on a boat.**—Rockefeller assisted by a Philadelphia lawyer would go broke and crazy doing **that,**—but **we do** carry a big assortment of dependable goods, in all varieties that have proven their merit, and we try to keep that stock full and complete.

¶In a word our ambition is to **Set The Pace** as far as the Marine Supply business is concerned. Our customers have helped us in the past and we depend on their help for the future.

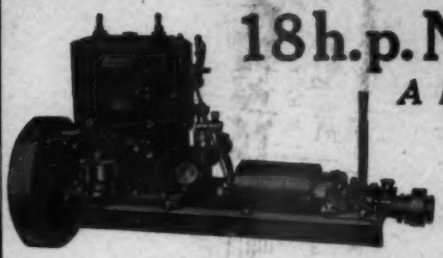
GOOD LUCK FOR 1916

AND SEND FOR OUR MARINE SUPPLIES
CATALOG, NUMBER 102, IF YOU HAVEN'T A COPY

GEO·B·CARPENTER & CO.

430-440 WELLS STREET **CHICAGO**

NORTAWESTERN MOTORS



18 h.p. Northwestern Mogul, $250

A Power Plant Good Enough for Any Boat

ELECTRIC EQUIPMENT:
10 Amp. Charging Magneto
6-80 Storage Battery
Long-distance Searchlight
Hand Searchlight
Switchboard
Volt Meter

The Ideal High Duty Power Equipment

SOLD ON 30 DAYS' FREE TRIAL

The Northwestern Mogul is ideal for severe service in boats from 20 ft. up. It is a heavy service, high duty engine of medium weight and extreme compactness, built strong enough for continuous use in the hardest kind of work. Equipped with the Rosholt patented gas-tight crankcase bearings, giving wonderful economy in fuel consumption.

The equipment is unusually complete and absolutely high grade, and includes many valuable features not found in any other motor.

Northwestern Row Boat Motor

$50

Row boat motors have gained wonderfully in popularity during the past years and right in the front rank you will find this Northwestern Row Boat Motor. It is a beautiful little engine, painted a dark maroon with piano finish, and the design and equipment are just as good as the finish. We consider it without doubt the greatest outboard motor value on the market today, and if you will examine it critically and compare it with others in quality and price you will see that it is equal to any of them, regardless of price.

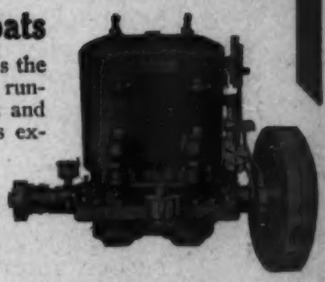
Castings are made of the highest grade semi-steel and malleable iron. All parts below water are bronze except cut gears which revolve in oil, aluminum exhaust pipe, rubber-covered spark plug, convenient steering lever with notched ratchet, so boat can be set to go straight ahead or at any angle, making it easy to handle in wind or waves; water-cooled cylinder, furnished either with battery ignition, fly-wheel magneto or Bosch—at option of purchaser; is also equipped with reversing device, so boat can be made to run either forward or backward by simply pressing a button.

If we made no other motors than this one model we would have to charge more for it, but our other models carry our overhead, so we have set the price of this row boat motor as low as possible, because we consider it the best kind of an advertisement for Northwestern quality.

SOLD ON 30 DAYS' FREE TRIAL

Northwestern High Speed Motor for Pleasure Boats

This motor is recommended for all pleasure boats from 18 to 25 feet. It is the highest grade two-cycle engine that can be built, compact, quiet, smooth running and practically vibrationless. Complete high grade equipment and handsome maroon piano finish. Like all Northwestern engines except the row boat motor it is fitted with



Rosholt Patented Gas Tight Bearings

This is one of the most valuable inventions applied to motor boat engines for years, a wonderful fuel saver.

The crankcase bearings are equipped with soft textile graphite packing rings, which allows main bearings to be run looser, thus obviating friction and saving compression. Northwestern engines run longer and give more power on the same quantity of gasoline than any other engine in the world.

Northwestern Single Cylinder Engines

10 h. p., $150

SOLD ON 30 DAYS' FREE TRIAL

High Grade Moderate Price Medium Weight and Speed

2 H.P. A wonderful engine for so small a model, suitable for launches from 16 to 18 feet. Equipment and finish equal to our larger motors. Light, simple, compact. Price $50.

4 H.P. The most popular engine we build, suitable for launches from 16 to 22 feet; with complete boat equipment. Price $75.

7 H.P. A low priced heavy service engine for fishermen, oyster dredgers, boat builders, and others who want reliable power 365 days in the year. Develops actually 9 H.P. on brake test. Price, complete, $100.

SOLD ON 30 DAYS' FREE TRIAL

Write us today for the latest illustrated Northwestern catalog. It is a revelation in two cycle engine construction and value. It explains also our liberal selling plan.

NORTHWESTERN MOTOR CO., 850 Spring St Eau Claire Wisconsin USA

Spar Composition

The best known and most durable marine varnish in the world. The acknowledged standard with ship, yacht and motor boat builders. Positively salt and fresh water proof, it has no equal for exterior marine use or outdoor work of any kind. The deep brilliant lustre is not affected by the severest exposure. It will not spot, crack, blister or scale and cannot turn white.

No. 1 Preservative

The best interior finish that brains and experience can produce for use on steamships, yachts and motor boats. Less liable to mar or scratch than any finish known. Is not affected by the use of hot water and soap. Can be rubbed and polished, or left with an egg-shell gloss.

Waterproof Floor Finish

The only reliable finish to use on the floors of yachts and motor boats. Heel marks do not show white on it. Can be washed with hot water and soap, the only way to keep a floor clean.

Send for Booklet "WHAT TO USE AND HOW TO USE IT"

TRADE MARK DDC PATENTED FEB. 14TH 1871

THE DAVID B. CROCKETT CO.
VARNISH MAKERS
BRIDGEPORT, CONN.

DRIVING along in a blinding fog, with the danger of collision or accident ever present, your Joe's Reverse Gear will be your greatest comfort and protection. Making a landing or threading your way through busy harbor traffic your Joe's Reverse Gear is again the most important safety feature you can have, providing for your boat the perfect control which automobiles secure on land by their brakes.

Joe's Reverse Gears have been recognized for many years as the standard of reliability and efficiency. They are made in all types for all requirements and sizes of boats. Adopted by many leading engine builders for standard equipment.

THE NEW LONDON SHIP AND ENGINE COMPANY
GROTON, CONNECTICUT

September 20, 1915.

Snow & Petrelli Mfg. Co., New Haven, Conn.

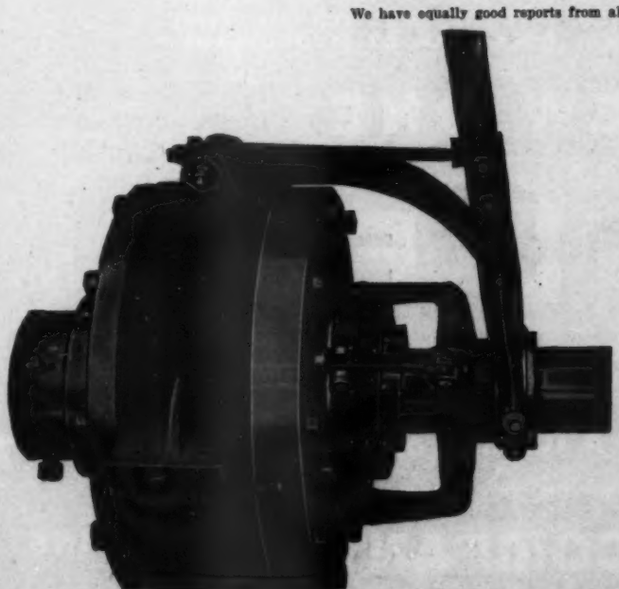
Gentlemen:—In regard to the service given by your gears in connection with our Niseco Diesel engine installations in the cannery tender "Warrior," cannery tender "Chomly," fishing schooner "Manhassett," yacht "Idealia," and Company work boat "Niseco," state that your clutches have been subjected to severe tests and have given entire satisfaction in each case.

The following is an extract from the engineer's log of the "Chomly" after an 800-mile run from Seattle, Wash., to Chomly, Alaska:

"Examined clutch while in Chomly. Took it all apart and found everything fine. Some Clutch."
(Signed) STANLEY MILLER, Eng'r.

We have equally good reports from all of our engines equipped with your Joe's Gears.

Yours very truly,
NEW LONDON SHIP & ENGINE CO.
ARTHUR FULLER, Sales Manager.



Joe's Duplex Drive, the only heavy duty gear with the same speed ahead and astern that does not depend on lock gear teeth for forward drive. The gearing is quadruplex and the duplex friction drive takes the strain off the gearing on the go-ahead. Particularly adapted to tow and ferry boats. Also for high power, high speed pleasure or racing craft.

THE SNOW & PETRELLI MFG. CO.

154 BREWERY STREET
NEW HAVEN, CONN., U. S. A.

AGENTS:

J. King & Co., 10 Church Row, Limehouse, London, Eng.
L. H. Coolidge Co., Seattle, Wash.
Gasoline Engine Equipment Co., 85 Liberty St., New York
Rapp-Huckins Co., Boston
Wood, Vallance & Leggat, Vancouver, B. C.
Shea Sales Co., Montreal
Thompson Engine & Launch Co., Foot Charles St., Baltimore
A. R. Williams Mchy. Co., Toronto
Warren Boat Co., Chicago

Manufacturers of Reversing Gears, Rear Starters, One-Way Clutches, etc.

HAVE A HYDE

"Hyde" Turbine Type Propellers are made of Hyde Manganese Bronze

Guaranteed Against Breakage

"Hyde" Manganese Bronze is used by the U. S. Navy for Propellers on Battleships, Torpedo Boat Destroyers and Submarines

Hywinco TRADE MARK

HYDE TURBINE TYPE PROPELLERS

HAVE WON MORE BIG RACES AND ESTABLISHED MORE IMPORTANT RECORDS THAN ANY OTHER WHEEL MADE. THEY ARE THE BEST FOR ALL TYPES OF BOATS, WHETHER LAUNCH, CRUISER, WORK BOAT OR HYDROPLANE.

OUR NEW ONE
THE
"GALE" PROPELLER

Made from HYDE Patterns — A Good Propeller for Less Money

WRITE FOR DESCRIPTION AND PRICES

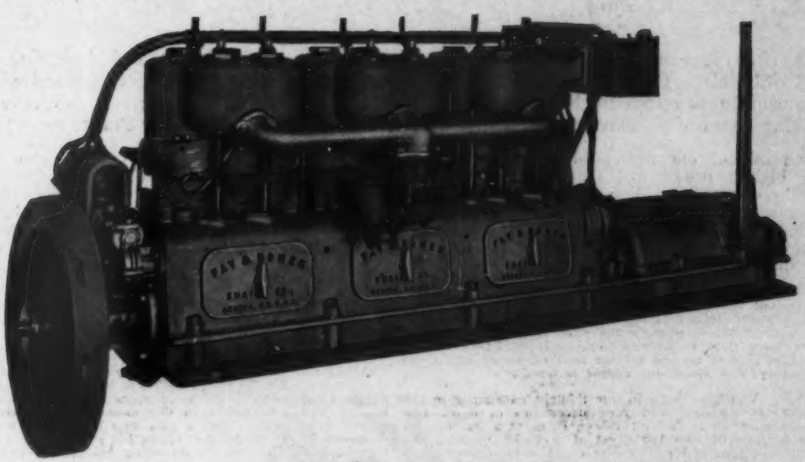
HYDE WINDLASS COMPANY, BATH, MAINE U. S. A.

A "BIG SIX"

FAY & BOWEN ENGINE

drives "Bittersweet" to another championship

Second Year for both Boat and Engine!



On Sept. 4th, 1915, at Ocean City, N. J., the fast express cruiser BITTERSWEET, owned by Congressman W. S. Vare, of Philadelphia, racing under the colors of the Chelsea Yacht Club, repeated her performance of 1914 by winning FOR THE SECOND TIME the A. P. B. A. CHAMPIONSHIP and the CHAMPIONSHIP of the South Jersey Racing Assn. for boats of her class. Speed 20 statute miles an hour. 75 H. P. Six-cylinder Fay & Bowen Engine.

Catalog sent upon request

FAY & BOWEN ENGINE CO.

104 LAKE STREET, GENEVA, N. Y., U. S. A.

Made for Canada by St. Lawrence Eng. Co., Ltd., Brockville, Ontario

THE 1916 Season bears fruit of a year of thought, careful study and designing of our 1916 Models. They are truly a thing of beauty and when you have combined with this the usefulness to which this extremely splendid power plant adapts itself you have something giving years of pleasure to the owner of a Kermath 1916 Unit Power Plant.

We are proud of our new production and we have a right to be. Look over every engine on the market. Pick out the highest priced and the best known ones you can find. Compare them with the 1916 Kermath and they fade by comparison. You immediately ask yourself, What right has any one to charge more than the Kermath Company? See what they give in the line of completeness, efficiency and most advanced construction. Just good thought and careful study will convince you of the fact that if you pay more than the Kermath price for engines of Kermath power, you are throwing your money away and you are actually being robbed of your good dollars which will buy double service in a Kermath purchase.

DESIGN: Where will you get, in the entire marine engine industry, an engine of more perfect design? One in which every detail in construction has been worked out to produce the most extreme smooth and quiet operation, be fairly light in construction, and yet heavy enough to stand the extreme strains of marine service working under any speed from 600 to 1,200 r.p.m., for which our engine is designed.

BOAT BUILDERS: You have been in our thought constantly in the layout of this engine, as we have had your necessities in mind, and see what we have done for you. A Unit Power Plant at a low enough price to permit a larger sale of your boats, yet of a quality unsurpassed. Drop this Plant into your boat and your entire outfit is in perfect alignment with a beautiful 5-plate multiple disc clutch, *Kermath make*, built right on the end of the crank shaft. Then the rear starter; all built in, running in oil, something clean to give to your customer. No holes to bore in your bulkhead. No lining up and setting up of two or three units. The starter bracket comes forward of the bulkhead or may be installed back of the bulkhead to conceal the upright if preferred. This beautiful power plant is going to save you $20.00 on every installation, and when it is installed it will be so satisfactory that it will be a real pleasure to you to have turned it out.

SILENCE: It was not our intention when we started on the 1916 model to build an engine that was so quiet you could not hear it run. We tried, of course, to reach the limit of perfection in engine operation, but apparently there is no limit. A silent chain drive of a high quality made by the Link-Belt Company, such as is used in Packard and Cadillac motor cars, is installed to drive the cam shaft and magneto shaft. All noise from this point has been eliminated. Do you find this in the highest priced engines you know of? You certainly do not, and yet everyone knows that it costs three times as much to put in silent chains as it does to use gears. Standing alongside the engine you cannot hear it run.

VALUE: Pursuing our policy of giving the most for the money, Mr. Kermath has simply gone the limit in putting in the best of everything. As you know, our wonderful Vanadium 20 embodies in its forgings a steel which is absolutely not used by builders of the most expensive engines, even in their most expensive racing engines. We have not been careless in adding all this expense to the Kermath engine and yet charging no more for it, but we know that with our very greatly increased production for 1916 season we can give this greater value for the same money as before. The Kermath is so well and so favorably known throughout the entire world today that persons buying good boats are demanding this power plant.

ADAPTABILITY: Kermath engines may be installed in a heavy cruiser to turn a 20 in. propeller at 600 r.p.m., or may be installed in a 25 ft. V-bottom to do 20 to 21 miles an hour, which certainly shows the extreme range of power in this motor and its extreme flexibility. The control is so perfect that a man who has not used a 4-cycle engine and does not know its control, opens his eyes to the fact that he has been asleep on the job by not throwing his 2-cycle engine in the lake five years ago.

STANDARDIZATION: Never in the history of the marine engine business has any concern attempted to bring standardization to a point as effected by the Kermath Company for 1916. The lower pan base measurement is exactly the same for all models. This is made this way so that the boat builders producing a number of boats may make their engine bed the same for all three models and have their boats adaptable for the Standard 12, Model 16 or Vanadium 20 horse power engine. Any one purchasing a 12 H.P. engine this year, who may want a 20 H.P. next year, can make the necessary change without changing the engine bed, and of course you know the cost of running a Kermath as far as depreciation is concerned is extremely slight because they command a very high second-hand price. The value is there in the first place without a fancy price, and *true values never deteriorates.*

CLEANLINESS: Here is where we make our bow to the ladies and to white flannel suits. You know it really is no fun to get into a boat and afterwards take a trip to the dry cleaners. From stem to stern the Power Plant is enclosed. There is no chance for leakage of oil at any point and your boat is absolutely clean and free from throwing oil or dirt. This means a great deal in the summer pleasure boat. It means a great deal in the beautiful cruiser where you do not like to see your engine room spattered with oil and grease, and when you come right down to facts it means just as much to the man who is using this economical 4-cycle engine in his fishing boat, because there is no particular fun attached to being worked to death and covered with grease by any engine, and the work-boat man appreciates a clean engine and one which takes care of itself when supplied with oil and gasoline.

POWER DEVELOPED

		600 r.p.m.	800 r.p.m.	1000 r.p.m.	1200 r.p.m.
Standard	12.....	10 H.P.	12 H.P.	14 H.P.	16 H.P.
Model	16.....	14 H.P.	16 H.P.	18 H.P.	20 H.P.
Vanadium	20.....	16 H.P.	18½ H.P.	22 H.P.	25¾ H.P.

MODELS AND PRICES

Separate Engines without Reverse Gear.

12 H.P.,	3½" Bore, 4" Stroke	$180.00	and up.
16 H.P.,	3¾" Bore, 4" Stroke	$215.00	and up.
20 H.P.,	4 " Bore, 4" Stroke	$290.00	and up.

UNIT POWER PLANT AND ENGINES.

12 H.P.,	3½" Bore, 4" Stroke	$265.00	and up.
16 H.P.,	3¾" Bore, 4" Stroke	$300.00	and up.
20 H.P.,	4 " Bore, 4" Stroke	$365.00	and up.

Complete Catalog on request.

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KERMATH MANUFACTURING CO.

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Engines That Are Somewhat Different

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The Four New HARBECK High Speed Models

Ranging from 50 horsepower to 400

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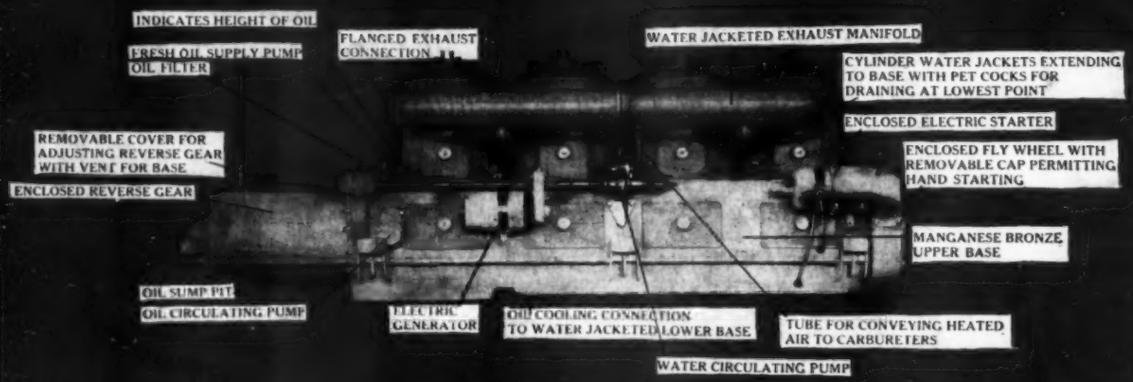
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ENCLOSED ELECTRIC STARTER
REMOVABLE COVER FOR ADJUSTING REVERSE GEAR WITH VENT FOR BASE
ENCLOSED REVERSE GEAR
ENCLOSED FLY WHEEL WITH REMOVABLE CAP PERMITTING HAND STARTING
MANGANESE BRONZE UPPER BASE
OIL SUMP PIT
OIL CIRCULATING PUMP
ELECTRIC GENERATOR
OIL COOLING CONNECTION TO WATER JACKETED LOWER BASE
TUBE FOR CONVEYING HEATED AIR TO CARBURETERS
WATER CIRCULATING PUMP

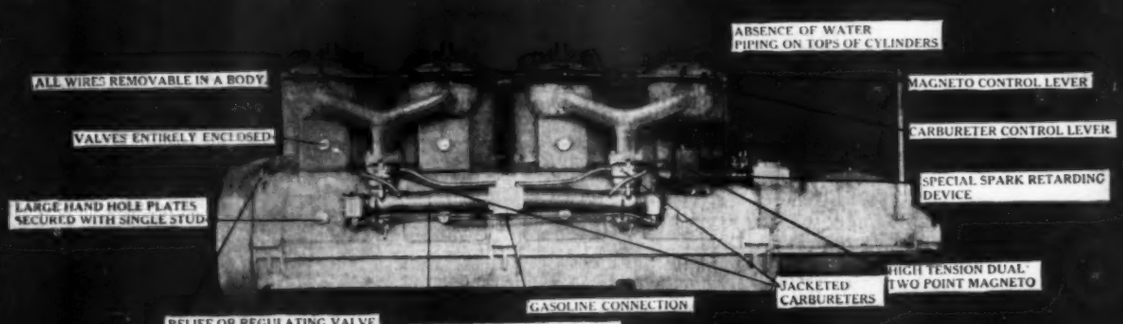
NEW MODEL F

Weight 2100 Pounds

200 H. P. AT 1500 R. P. M.

Eight Cylinders

Bore $5\frac{1}{2}$" Stroke $6\frac{3}{4}$"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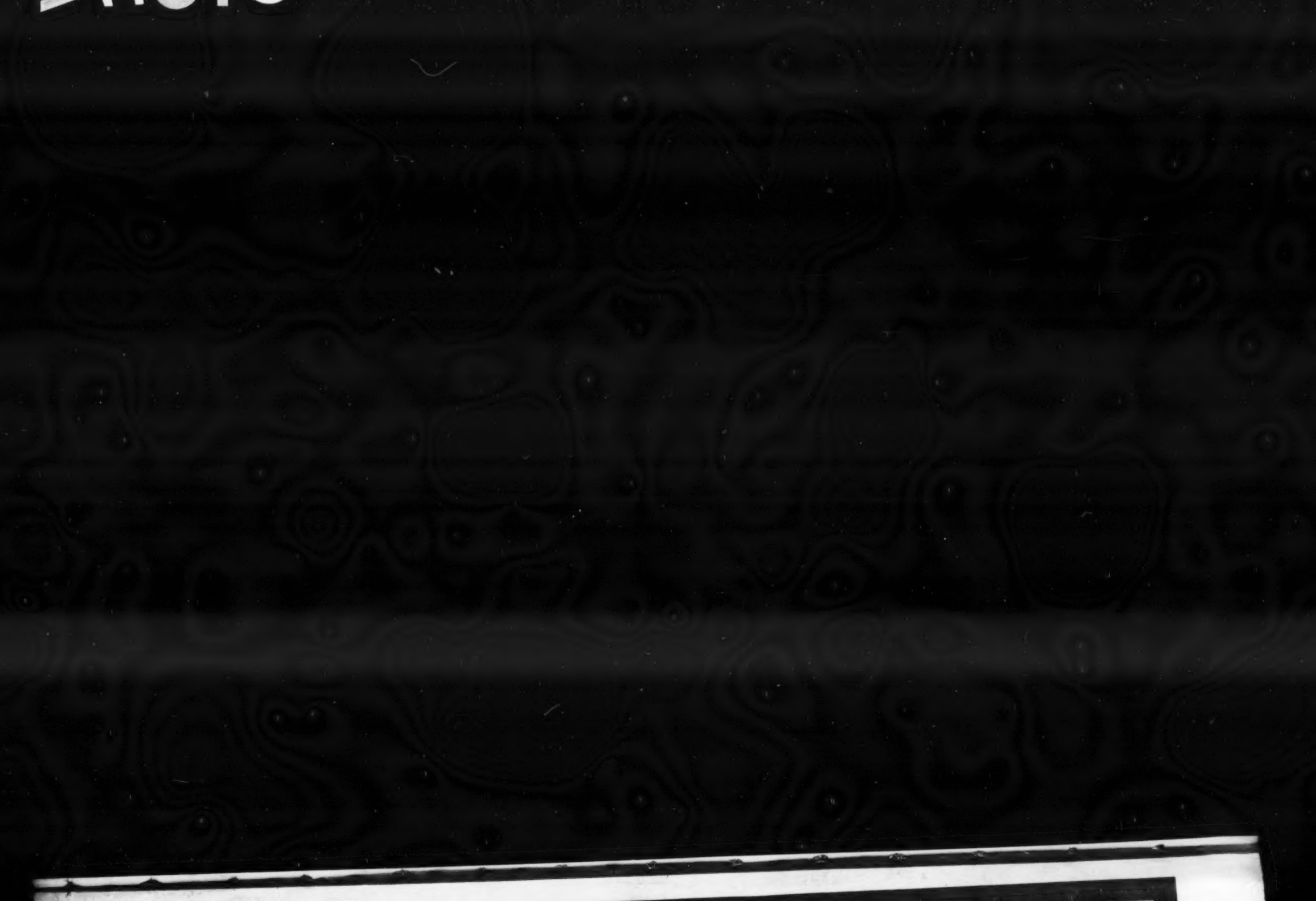
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